amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 46, No. 1 JANUARY 1978

CONTENTS

TECHNICAL

Digital Readout for the FT101	6
Simple QRP Updates	16
1K Memory for 8 Bit Baudot Code	13
80 Channels for the ICOM IC22S	9

GENERAL

A Monkey's Viewpoint	18
Commonwealth Contest 1977 Results	14
Do Amateurs Suffer from Their Image?	12
HF International	14
Index to Amateur Radio Vol. 45	21
John Moyle Memorial Field Day Contest Rules 1978	17
NCRA Convention Address—Senator Knight	11

DEPARTMENTS

Amateur Satellites	27
ATV News	18
Awards Column	29
Book Review	14
C.A.R.E.	23
Contests	29
Hamads	30
IARU News	25
Intruder Watch	28
Ionospheric Predictions	28
LARA	29
Letters to the Editor	23
QSP	3, 14, 20, 21
Repeaters	27
Silent Keys	30
VHF-UHF — an Expanding World	19
WIANEWS	5
WICEN	28

COVER PHOTO

Meet the Edmonds family from Frankston, Victoria — all radio amateurs. From left to right: John VK3AFU, Brenda VK3KT, Brenda Jnr. VK3NFB, Vicki VK3ZTC, Alex VK3NEU, Charles VK3ZXZ. The WIA believes this could be a world record. John and Brenda (Snr.) have been licensed for 17 years; the children all obtained their licences during 1977. We wonder what subjects are talked about over the dinner table!

HAM RADIO SUPPLIERS

323 ELIZABETH STREET, MELBOURNE, VIC., 3000

Phones: 67-7329, 67-4286

Our Disposals Store at 104 HIGHETT ST., RICHMOND (Phone 42-8136) is open Mondays to Fridays, 9.00 a.m. to 5.00 p.m., and on Saturdays to midday.

FM LEAD ANTENNALESS MICROPHONE

MODEL FIRST-101 (Uni-directional Condenser Microphone)

A new professional quality uni-directional condenser microphone featuring superb sensitivity and excellent frequency characteristics. Very easy handling because of cordless microphone. Operates on just one UM-3 battery for 100 hours of continuous use. Very economical. The transmitting frequency freely adjustable within FM radio band. If using without lead antenna, sound is caught within about 50 metres, when using with reinforced antenna to jack at the bottom, range is extended up to about 100 metres.
Accessories: Battery UM-3, Wind screen, Adjusting screwdriver, reinforced antenna line, microphone stand.

NETT PRICE $33.90
Postage $1.40

MODEL YWI

STANDING WAVE BRIDGE, FIELD STRENGTH AND POWER INDICATOR

YW-1 is a handy, compact device for the amateur radio station in checking transmitters operation. For measurements, it uses the bridge method of comparing the power supplied to and reflected from the antenna system. Continuous monitoring of the transmitter output is possible by having the instrument in the circuit at all times. The model can be used as a simple field strength meter by disconnecting it from the feedline and attaching a small pickup antenna.

Meter Sensitivity: 200 uA on DC current (at full scale; **VSWR Meter Range:** 1 : 1 — 1 : 3; **Power Meter Range:** 0 — 10W; **Impedance:** 50; **FS Meter Range:** 0 — 10 dB; **Accuracy:** 1.5 MHz — 50 MHz 10 per cent; **Dimensions:** 5¾ (h) x 2-3/8 (w) x 3 (d) in.; **Weight:** 16.58 ozs.

NETT PRICE $22.00
Postage $1.50

YAESU FRG-7

THE RADIO FOR WORLD-WIDE LISTENING AT ITS BEST — 0.5-29.9 MHz COVERAGE SYNTHESIZED COMMUNICATION RECEIVER

The model FRG-7 is a precision built high performance communication receiver designed to cover the band from 0.5-29.9 MHz. Its state of the art technology offers an unprecedented level of versatility. The Wadley Loop System (drift cancellation circuit) coupled with a triple conversion super heterodyne system guarantees an extremely high sensitivity and excellent stability. It provides complete satisfaction to amateurs as well as BCLs with superb performance and many features such as RF attenuator, selectable tone, and automatic noise suppression circuit.

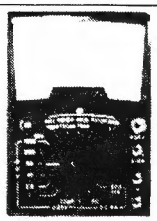
$338

E.E.I. SOLID STATE CAR RADIO

MW BAND
PUSH-BUTTON TUNING
SPECIFICATIONS:
Power Supply: 12 V DC
Receiving Frequency: MW 520KC (580M) — 1640KC (183M)
Intermediate Frequency: 455KC
Audio Output: 4.5W
Transistors: 8, diode 4
Speaker: 5" Permanent Dynamic 4 ohm
Sensitivity: Less than 20 uV at 20 N/S
Selectivity: More than 25 dB at + 10 kHz detuning
A.G.C.: More than 45 dB at 1,000 kHz
IF Rejection: More than 40 dB at 600 kHz
IM Rejection: More than 50 dB at 1,400 kHz
Cabinet Dimension: 1-7/8" (H) x 6-1/5" (W) x 4-1/8" (D)

$32.90 — Free Post

MODEL OL64 D/P MULTIMETER. Very ruggedly constructed this model is particularly suitable for workshops. It features special scales for measurement of capacitance and inductance. Diode protested movement: **Specifications:** 20,000 ohm/volt DC. 8,000 ohm/volt AC. DC volts — 0.25; 1; 2.5V; 10; 50; 250; 1,000; 5,000. AC volts — 10; 50; 250; 1,000. DC amps: 50 uA; 1 mA; 50 mA; 500 mA; 10 A. Ohms — 4 K ohm; 400 K ohm; 4 M ohm; 40 M ohm. Centre scale — 40 ohm; 4,000 ohm; 40,000 ohm; 400,000 ohm. Decibel: —20 to +62 dB, Dimensions: 6" x 4-1/5" x 2"; 152 x 107 x 51 mm. Inductance — 0/5000H. Carrying case available, Model C $6.90.



$32.50 **Postage $2.20**

E.E.I. PORTABLE RADIO

AM/AIR VHF
SPECIFICATIONS:
Freq. Range: AM530-1600 kHz, AIR (VHF) 108-174 MHz. **Intermed. Freq.:** AM 465 kHz, FM 10.7 MHz. **Output:** 450 mW max. **Speaker:** 2½" permanent—magnetic dynamic type, 8 ohm. **Power Source:** DC — 6V (4 x UM3 Penlite) or equivalent. **Semiconductor:** 10 trans., 7 diode. **Dimensions:** 8½" (W) x 4½" (H) x 1-7/8" (D)

$18.90 — Postage $1.40

MODEL AS100 D/P MULTIMETER

This meter features double zener diode meter protection and 3½" full view easy to read 2 colour scale. It is fitted with polarity reversing switch and housed in a strong moulded case with carrying handle.
SPECIFICATION: 1000,000 ohm/volt DC. 10,0000 ohm/volt AC. **DC Volts:** 0.3, 3, 12, 60, 120, 300, 600, 1,200. **AC Volts:** 6, 30, 120, 300, 600, 1,200. **DC Amps:** 12 uA, 6 mA, 60 mA, 300 mA, 12A. **Ohms:** 2k, 200k, 2m, 20m, 200m ohm. **Centre Scale:** 20 ohm, 2,000 ohm, 20,000 ohm, 200,000 ohm, 20m ohm. **Decibel** —20 to +57 db. **Dimensions:** 7-3/5 x 5-2/5 x 2-3/5 ins. Carrying case for model I — $7.90.
Price: $52.50 — Postage $2.20.

BULK STORE *DISPOSALS*

AT 104 HIGHETT STREET
RICHMOND, 3121
Phone (03) 42-8136

NEW AWA-THORN TV TUNERS

Type ENR5758, fitted with 6GK5 and 6G57 valves.

$2 each plus P&P

NEW MAGNAVOX 53TS SPEAKERS

5" x 3" 8ohm, ideal for small extension speaker for communications equipment.

$1.95 each plus P&P

CAPACITORS

Variable Beehive Philips Type 25 pF, real value at

15c each or 10 for $1

VARIABLE BUTTERFLY CONDENSERS

with screw driver adjustment, available in 9-17 and 25 pF. While they last at

$2 each plus P&P

EDGE METERS

0-1 mA moemvent calibrated, 0-5 ounces. Brand new in boxes.

$3 each plus P&P

LARGE VARIETY OF MULTI-CORE SHIELDED CABLE

All extremely high quality.

2 CORE SHIELDED .... **30c yard**
4 CORE SHIELDED .... **40c yard**
6 CORE SHIELD, ideal for rotators **45c yard**

Please add pack and post for above cable when ordering.

We also have a large range of **ELECTRONIC DISPOSALS EQUIPMENT,** including TRANSFORMERS, CABLE, TEST EQUIPMENT, TRANSMITTERS, METERS, etc.

You are invited to call in and inspect. **NO PARKING PROBLEMS A 104 HIGHETT STREET RICHMOND. Phone 42 8136.**

WE STOCK CB GEAR AS WELL AT VERY COMPETITIVE PRICES, INCLUDING ANTENNAS AND ACCESSORIES.

MAIL ORDERS WELCOMED. Please allow pack and post on items listed on this page. If further information required send a stamped SAE for immediate reply from the above address. Larger items can be sent F.O.B. Due to circumstances beyond our control, prices quoted in this advertisement are subject to alteration without notice. New equipment available at our Bridge Road Store.

amateur radio

Published monthly as its official journal by the Wireless Institute of Australia, founded 1910.

JANUARY 1978
Vol 46, No. 1

PRICE: 90 CENTS
(Sent free and post paid to all members)

Registered Office:
2/517 Toorak Road,
Toorak, Victoria, 3142.

Registered at the G.P.O. Melbourne for transmission by Post as a Periodical — Category "B".

EDITOR:
BRUCE BATHOLS* VK3UV

ASSISTANT EDITORS:
RON COOK* VK3AFW
GIL SONES* VK3AUI

TECHNICAL EDITORS:
BILL RICE* VK3ABP
KEN PALLISER VK3GJ

CONTRIBUTING EDITORS:
BOB ARNOLD VK3ZBB
BRIAN AUSTIN VK5CA
ROD CHAMPNESS VK3UG
SYD CLARK* VK3ASC
RON FISHER* VK3OM
DAVID HULL VK3ZDH
ERIC JAMIESON VK5LP
KEN JEWELL VK3AKK
PETER MILL VK3ZPP
KEVIN PHILLIPS VK3AUQ
LEN POYNTER* VK3ZGP

DRAFTING:
ALL DISTRICTS DRAUGHTING SERVICE
KEN GILLESPIE* VK3GK

PHOTOGRAPHER:
REG GOUDGE —

BUSINESS MANAGER:
PETER DODD VK3CIF

ADVERTISING REPRESENTATIVE:
DAVID COOK

***Member of Publications Committee**

Enquiries and material to:
The Editor,
PO Box 2611W, GPO Melb., 3001

Copy is required by the **third of each month.** Acknowledgment may not be made unless specially requested. All important items should be sent by certified mail.
The Editor reserves the right to edit all material, including Letters to the Editor and Hamads, and reserves the right to refuse acceptance of any material, without specifying any reason.

Advertising:
Advertising material should be sent direct to **P.O. Box 150, Toorak, Vic., 3142,** by the **25th of the second month preceding publication. Phone: (03) 24 8652.**
Hamads should be sent direct to **P.O. Box 150, Toorak, Vic., 3142,** by the **3rd of the month preceding publication.**

Trade Practices Act:
It is impossible for us to ensure that advertisements submitted for publication comply with the Trade Practices Act 1974. Therefore advertisers and advertising agents will appreciate the absolute need for themselves to ensure that the provisions of the Act are complied with strictly.

Printers: EQUITY PRESS PTY. LTD.
50-52 Islington Street, Collingwood, 3066
Tel.: 41-5054, 41-5055

QSP —

NOW TO THE FUTURE

To all members of the WIA, Greetings for the New Year.

Your support throughout the past year has been of great value and particularly appreciated by all those volunteers who work for the furtherance of Amateur Radio through the WIA.

It is pleasing to note that the WIA throughout Australia, has been able to minimise subscription rises this year, where any increase was unavoidable. This has been helped to some extent by our steady rise in membership.

At this stage, I would like especially to greet all those new novice amateurs, who have so recently joined our fraternity, you are all most welcome, and I hope that this is only your first step in amateur radio as was intended in the original concept of the novice licence.

The next two years leading up to WARC 79 are going to be of the utmost importance to the amateur service world wide.

Preparation for WARC throughout the world is swinging into gear. Some countries such as the U.S.A. and Australia are fairly well advanced in their preparation, others have not proceeded nearly as far, even more have done very little preparation whatsoever.

As WARC 79, like all ITU conferences, is one country, one vote, you will see the importance of as much IARU assistance as possible being given to the smaller countries in order that they may be able to place their case in the amateur service before their own administrations.

Much has been done already, much more has yet to be done.

Nationally, the WIA and internationally the IARU are leaving no stone unturned to further the cause of the amateur service in these critical times.

Good luck for 1978
DAVID WARDLAW VK3ADW
Federal President ■

WIRELESS INSTITUTE OF AUSTRALIA

Federal President: Dr. D. A. Wardlaw VK3ADW

Federal Council:
VK1 Brig. R. K. Roseblade VK1QJ
VK2 Mr. T. I. Mills VK2ZTM
VK3 Mr. J. Payne VK3AED
VK4 Mr. N. F. Wilson VK4NP
VK5 Mr. I. J. Hunt VK5QX
VK6 Mr. N. R. Penfold VK6NE
VK7 Mr. P. D. Frith VK7PF

Staff: Mr. P. B. Dodd VK3CIF, Secretary.
Part-time: Col. C. W. Perry, Mrs. J. M. Seddon and Mr. T. Cook (AR advertising).

Executive Office: P.O. Box 150, Toorak, Vic., 3142. 2/517 Toorak Rd., Toorak. Ph. (03) 24 8652.

Divisional information (all broadcasts are on Sundays unless otherwise stated):

ACT:
President — Mr. E. W. Howell VK1TH
Secretary — Mr. D. J. Farquharson VK1ZDF
Broadcasts— 3570 kHz & 146.5 MHz: 10.00Z.

NSW:
President — Mr. T. I. Mills VK2ZTM
Secretary — Mr. I. A. Mackenzie VK2ZIM
Broadcasts— 1825, 3595, 7146 kHz, 28.5, 52.1, 52.525, 144.1, Ch. 8 and other relay stations: 01.00Z. (Also Sunday evenings 09.30Z and Hunter Branch, Mondays 09.30Z on 3570 kHz and ch. 3 and 6).

VIC.:
President — Mr. S. T. Clark VK3ASC
Secretary — Mr. J. A. Adcock VK3ACA
Broadcasts— 1825, 3600, 7135 kHz — also on 6m, 2m SSB and 2m Ch. 2 repeater: 00.30Z (Also on Radio 3HA).

QLD.:
President — Mr. D. T. Laurie VK4DT
Secretary — Mr. P. Brown VK4PJ.
Broadcasts— 1825, 3580, 7146, 14342 kHz: 09.00 EST.

SA:
President — Mr. C. J. Hurst VK5HI
Secretary — Mr. C. M. Pearson VK5PE
Broadcasts— 1820, 3550, 7125, 14175 kHz; 28.5 and 53.1 MHz, 2m (Ch. 8): 09.00 S.A.T.

WA:
President — Mr. R. Greenaway VK6DA
Secretary — Mr. N. R. Penfold VK6NE
Broadcasts— 3600, 7080, 14100, 14175 kHz, 52.656 and 2m (Ch. 2): 01.30Z.

TAS.:
President — Mr. R. K. Emmett VK7KK
Secretary — Mr. H. E. Hewens VK7HE
Broadcasts— 3570, 7130 kHz: 09.30 EST.

NT:
President — Mr. Doug Haig VK8JD.
Secretary — Mr. Henry Anderson VK8HA.
Broadcasts— Relay of VK5WI on 3.55 MHz and on 146.5 MHz at 2330Z. Slow morse transmission by VK8HA on 3.555 MHz at 1000Z almost every day.

Postal information:
VK1 — P.O. Box 1173, Canberra, 2601
VK2 — 14 Atchison St., Crows Nest, 2065 (Ph. (02) 43 5795 Tues & Thurs (10.00-14.00h).
VK3 — 412 Brunswick St., Fitzroy, 3065 (Ph. (03) 41 3535 Sat 10.00-12.00h).
VK4 — G.P.O. Box 638, Brisbane, 4001.
VK5 — G.P.O. Box 1234, Adelaide, 5001 — HQ at West Thebarton Rd., Thebarton (Ph. (08) 254 7442).
VK6 — G.P.O. Box N1002, Perth, 6001.
VK7 — P.O. Box 1010, Launceston, 7250.
VK8 — (incl. with VK5), Darwin AR Club, P.O. Box 1418, Darwin, 5794.

Slow morse transmissions — most week-day evenings about 09.30Z onwards around 3550 kHz.

VICOM

139 AUBURN ROAD, AUBURN, Vic.
Telephone: (03) 82.5398, (03) 813.2355
TLX 30566
Adelaide: 43.7981 Brisbane: 38• 4480
Canberra: 82.3581 Gold Coast: 32.2644
Perth: 446.3232

Sunspot Cycle 21 Coming up

Sunspot 21 is now on the up & up! Share in some of the fun on 6 metres with the ICOM IC502 ssb portable transceiver. The IC502 covers 52-53MHz with VFO control, RIT, effective noise blanker, provision for external power and antenna and comes complete with carrystrap, mic and English Manual. Backed by VICOM 90 day warranty. Price **$219.**

HELLO 6M DX

2M SSB PORTABLE

The **IC202** is the ideal 2m exciter for those long-haul DX contacts or to work **OSCAR.** 3 watts ssb and cw. VXO control, quality manufacture and comes complete with English manual, carry-strap, mic and VICOM 90 day warranty. Price **$219.**

ACCESSORIES FOR THE PORTABLES:

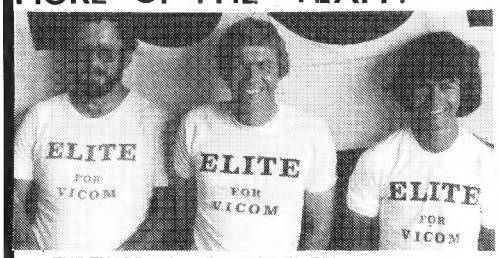
Rubber Ducky 2m antennas	$13
Mobile bracket for portables	$18
BC-20 nicad battery pack and reg.	$57
IC3PS power supply stand	$115
IC50L 6m linear, 10w out	$98
IC20L 2m linear, 10w out	$98

Price $785.

ICOM IC-211 2m transceiver

• 144 to 148 MHz coverage • Modes: SSB, CW, FM • LSI synthesizer PLL • 4-digit LED readout • Pulse-type noise blanker • VOX w/adjustable gain • SWR bridge • CW monitor • Automatic power control • AC/DC power supplies • Antenna impedance: 50 ohms unbalanced • TX output: 10W PEP.

MORE OF THE TEAM!



THE THREE WISE MEN FROM ELITE!
Elite Electronics are the VICOM Brisbane distributors. Graham Harper and the boys are part of the friendly VICOM team able to give personalised service to the serious Radio Amateur. Give Graham a call today!

MORSE KEYS

HK702 deluxe, marble base	$35
HK708 economy model	$19
HK706 operator's model	$20
MK701 manipulator	$38
ED103W electronic keyer	$159

YAESU

FT101E HF transceiver 160m thru 10m	$859
FL2100B HF linear amplifier	$578
FRG-7 Receiver	$338
FT301D HF solid-state transceiver	$1149

KENWOOD

TS820S HF digital transceiver	$1105
TS520S HF 160-10m transceiver	$705
VFO820 vfo for TS820S	$115
TV502 2m transverter	$260
TV506 6m transverter	$229
TR7400 2m fm digital transceiver	$450
MC50 desk mic, dynamic	$54

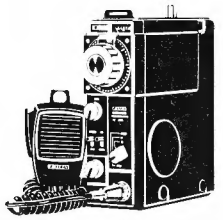
SPEECH PROCESSORS

MC330 audio mic compressor, ac/dc	$71
RF550 rf speech processor	$112
RF440 rf speech processor	$149

ROTATORS

ART3000C heavy duty with control box	$199
ART8000 super heavy duty	$478
AR22XL light duty for small beams	$109

Direction: Russell J. Kelly
Peter D. Williams

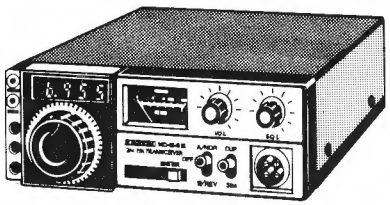


ICOM IC-215 2m FM transceiver

• 2 meter FM • 3 W PEP • 15 channels, 12 by selector, 3 by function switch • Dual power level, 3 W HI for long distance, 0.5 W LOW for local • Dial illumination for night use • Power pilot lamp • Frequency range: 146 to 148 MHz.

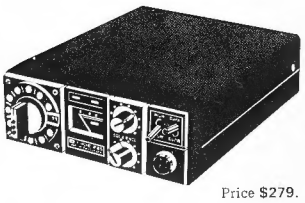
summer is icom portable time.

QUALITY HANDY PORTABLES



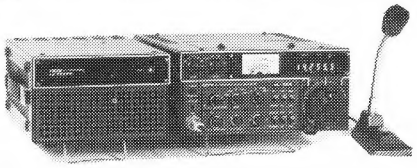
ICOM IC-245 2m transceiver

• LSI synthesizer PLL • 4-digit LED readout • Transmit & receive frequencies are independently programable on any separation • Receiver front-end is a balance of low noise, high-gain MOS FET & 5 section filter • TX output: 10 W PEP • Frequency step size: 5 KHz for FM, 100 Hz (with adapter) or 5 KHz for SSB.



Price $279.

ICOM IC-22S FM transceiver



The fabulous ICOM IC701 HF solid state transceiver. Initial shipments expected around March.

QM70

2m/432 fm transverter	$125
2m linear, 70w pep	$119
28/144 "SCORPION", high pwr	$225
432/28 converter	$50
144/28 converter	$45
1296/28 converter	$59

HAL

KSR-3000 RTTY terminal with monitor	$1499
ST-6000 FSK/demodulator with cro	$1031

MICROPHONES

VM-1 ptt lowZ, noise-cancelling	$8.90
VM-2 base with preamp, low Z	$29.80

NOISE BRIDGES

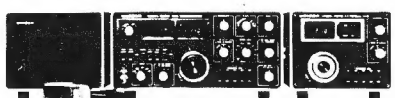
TE7-01 Omega, up to 100MHz	$40
TE7-02 Omega, up to 300MHz	$55

BALUNS

AS-BL(Asahi) for beams	$31
BN86 (HyGain) for beams	$30
BL50A (Rak) 50 ohm, 4Kw, dipole	$25
BL70A (RAK) 70 ohm, 4Kw, dipole	$26

couplers

CL65 500w, 2.5 thru 20MHz	$134
CL99 200w, 2 metres	$61
CSW216 incl swr/pwr meter, 3.5-28MHz	$219



$849 uniden

The fabulous Uniden 2020 phase-locked-loop transceiver offers separate usb/lsb/cw 8-pole crystal filters as standard and 6146B's in the final with screen voltage stabilisation for minimum distortion products. Features plug-in pcb's and even the front panel can be swung out for easy servicing. A full spares catalogue is available together with change-over pcb's. Compare the Uniden 2020 with other HF transceivers and you'll be quickly convinced that it offers the best value!

ICOM

WRITE FOR THE ICOM CATALOG

MORSE KEYS

HK702 deluxe, marble base	$35
HK708 economy model	$19
HK706 operator's model	$20
MK701 manipulator	$38
ED103W electronic keyer	$159

MICROPHONES

VM-1 ptt lowZ, noise-cancelling	$8.90
VM-2 base with preamp, low Z	$29.80

JAYBEAM

MBM48/70cm 48el 15.7dBd	$64

PARABOLIC DISH

PBA1200 432 & 1.2GHz	$349

L.P. FILTERS

FD30M 32MHz cut-off, 1KWpep max	$35
FD30LS 32MHz cut-off, 200w max	$20

Antennas!

You know you can count on

hy-gain

TH6DXX 6el 10/15/20m Thunderbird	$320
TH3MK3 3el tribander 8dB gain	$249
TH3Jr 3el tribander, 12' boom	$199

TRAP VERTICALS

V5Jr 6.7m high, 80 thru 10m, no guys	$109
V4Jr 4.25m high, 40 thru 10m, no guys	$89

TRAP DIPOLES

MidyVN 80 thru 10m	$67
AL48DXN 40 & 80 metres, 2Kw	$54

TWO METRES

ARX-2 Ringo Ranger base antenna	$49
Lindenow wave mobile whip	$26
42S ¼ wave mobile whip with cable	$14
82D wave mobile whip with cable	$26

Prices and specifications subject to change without notice.

WIANEWS

Members will have noted, and hopefully acted upon, the contents of the Federal insert into December AR relating to radio amateurs' concern about the illegal use of the frequency spectrum and the uncontrolled availability of transmitting equipment.

Pressures were also brought to bear upon the Department for some answers to the many outstanding questions of detail affecting us.

NOVICE THEORY EXAM

In addition a protest was lodged with the Secretary of the P. and T. Department concerning the standard of the October Novice theory examination. The Department was requested to re-examine the percentage marking of the papers to admit passes at levels lower than 70 per cent, having regard to the questions which were deemed to be closer to AOCP than Novice standards.

The Federal Education Officer, Graeme Scott VK3ZR, had called a special meeting of properly qualified expert instructors from various States on 7th December to discuss various examination questions, especially the continued lack of any syllabuses or study guides.

2m REPEATER CHANNELS

During October a letter was addressed to the Department advising the changes to the WIA 2m band plan relating to repeaters. Please see WIANEWS in October AR. No decision has been made yet concerning the 2m repeater numbering system to be adopted.

EDP

Further discussions with the commercial operator have been held. Subscription notices will be sent out in the same format this year as in the past. The new programme will not be ready in time before the notices are posted to members in the first or second week or December.

WARC 79 FUND

The Executive wishes to express grateful thanks for early donations received during 1977 towards the WARC 79 Fund from —

VK4ZSB	*$2.00*
VK4XZ	*1.50*
Moorabbin and District RC	*100.00*
Mr. Eric Trebilcock	*20.00*
Hornsby and District ARC	*15.00*

The efforts being made by the St. George ARS (Aug. AR, p. 33) and the Illawarra ARS (Oct. 77, p. 23) are greatly appreciated.

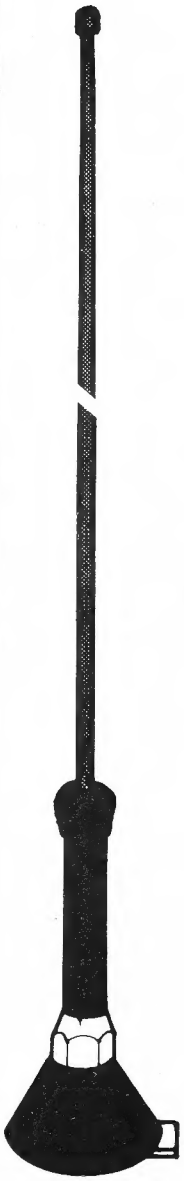
In addition to the individual donations for WARC 79, an amount of $750 was received from the VK6 Division and placed in interest-bearing deposits. This was the estimated per capita amount of levy for this Division as agreed at the 1977 Federal Convention.

In letter RB4/4/32 of 23/11/1977 the Radio Frequency Management Branch advises that approval has been obtained from the Minister for any existing Novice Amateur radio station licensee who was disadvantaged (as a result of the withdrawal of the 26.96 to 27.23 MHz band resulting in the need to purchase new equipment — or, where practicable, to have existing units modified — for the transference of operations to 28.1 to 28.6 MHz) and who desires to participate in the Citizens' Radio Service (CRS) may be granted a special licence to cover participation in both the Novice Amateur Service and the CRS. The annual fee for this will be $25 — i.e., the normal rate for a CRS station licence. Applications should be made to the offices of the State Superintendent's Radio Branch.

The Executive wishes to thank those members who donated past issues of amateur and electronic magazines and publications. Most of these will be forwarded to selected Amateur Societies in Region 3 when transport opportunities present themselves.

The members of the Executive and staff in the Executive office wish to convey Season's Greetings to all members and best wishes for a Happy and Prosperous 1978. ■

SCALAR
for Antennae



Amongst the comprehensive range of SCALAR ANTENNAE there are some of special interest to the Radio Amateur.

These include our VHF and UHF, C.B. Range, HF Mobile and Base Station Units for Land and Marine applications, for example . . . .

Model M25

For more efficient 2-metre performance use the SCALAR M25. A 3 dB gain mobile, designed for use in the 140-175 MHz band. The antenna is a 5/8 wavelength whip complete with integral loading coil. Constructed of fibreglass, these antennae combine resilience with non-ferrous continuity for high quality performance and noise free operation.

and SCALAR'S OWN . . .
"MAGNABASE" Model MBG

This high quality magnetic base may be fitted with any SCALAR whip. Instant installation on any flat metal surface. Fully protected for scratch-free mounting. Complete with 12 feet of RG58CU coaxial cable.

SCALAR Industries Pty Ltd
Communication Antennae Engineers

Available from:

N.S.W.:	Dick Smith Electronics	Phone: 439-5311
VIC:	Bail Electronic Services	Phone: 89-2213
S.A.:	Rogers Electronics	Phone: 264-3296
W.A.:	Allcom Pty. Ltd.	Phone: 57-1555
QLD:	Electronic Components	Phone: 371-5677

Trade Enquiries: **NSW:** 570-1392 **VIC:** 725-9677

DIGITAL READOUT FOR THE FT101

Keith Gooley VK2BGZ
2/38 Waters Road, Cremorne, NSW 2090

The aim of this project was to design and build a digital readout of the transceiver's frequency. The requirements are as follows:—

- ☐ **accuracy to be ± 100 hertz,**
- ☐ **unit to be small enough to sit conveniently on top of transceiver,**
- ☐ **power to be drawn from transceiver hence consumption to be as low as possible,**
- ☐ **use readily available devices.**

The photographs show the readout to be quite small, measuring approximately 40 mm high by 170 mm square.

Power consumption is fairly low at 300 mA maximum from the FT101 13 volt supply. This figure could have been reduced by using liquid crystal displays but these are about three times the price of red LED's and require exterior illumination. Power consumption is kept to a minimum by using the CMOS family of digital logic IC's. These are quite suitable operating from a 13 volt supply as switching at speeds in excess of 10 MHz is not required.

No modifications whatever are required to the transceiver as the VFO signal and the +13 volt supply are available on the external VFO socket. The display is stable and produces no audible interference, birdies, etc., in the receiver.

OPERATION

The device measures the transceiver's operating frequency in the following way. In the FT101 (although the principal can be applied to any transmitter, receiver or transceiver) the VFO tunes backwards from 9.2 MHz at the bottom of each band to 8.7 MHz at the top (highest frequency).

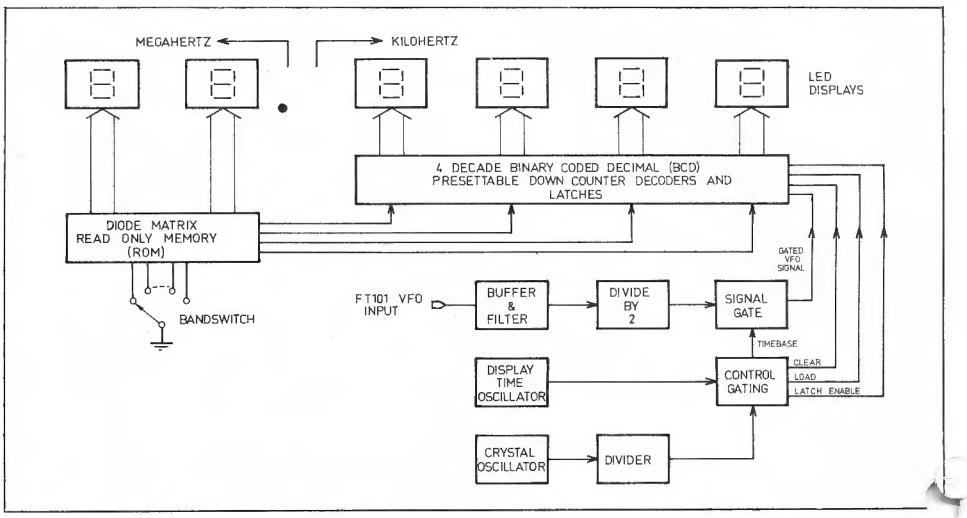


FIG. 1: Block Diagram.

Because of the backwards tuning, a down counter must be used so that as the VFO frequency is decreased the frequency displayed increases.

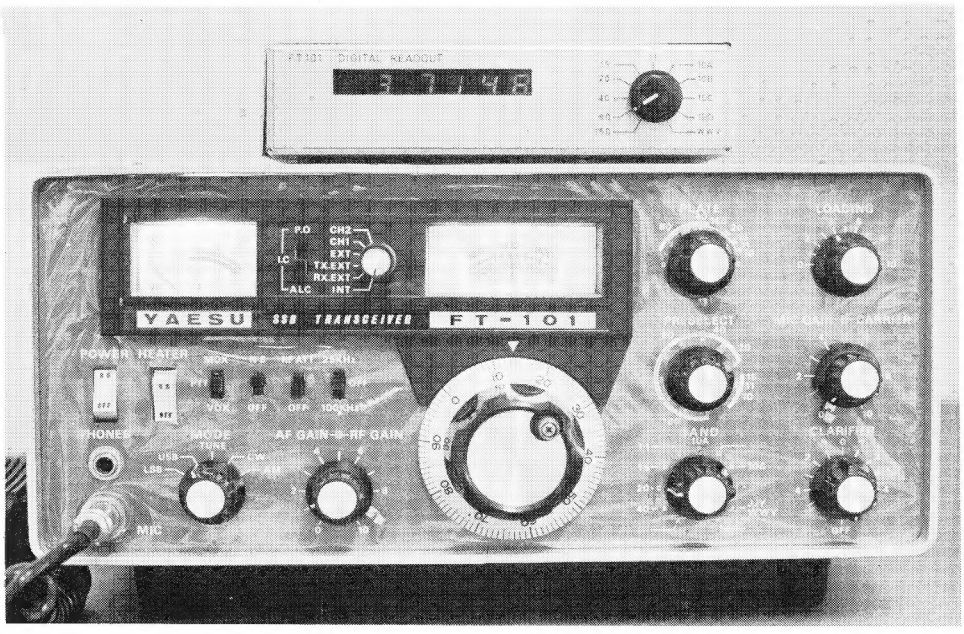
The VFO signal is gated through to the counters and as the megahertz digit of the VFO frequency is not required; it has no bearing on the transceiver's operating frequency anyway, the most significant digit is allowed to flow nine times such that the megahertz digit is lost and only the kilohertz digits are retained in the counter.

The two megahertz digits, tens and units are supplied to the LED's direct from one section of the diode matrix read only memory (ROM), controlled by the bandswitch such that when on 20 metres the two digits 1 and 4 are displayed and so for the other 10 bands of the FT101.

Since the frequency is required to a resolution of 100 hertz, the counter must be enabled for a period equal to the reciprocal of this frequency, that is 10 milliseconds. In this design the VFO signal after buffering is divided by 2 in a D-type flip-flop because the 74C192 counters will not operate from an 11 volt rail (the design lowest value) at 9 MHz but will count reliably at 4.5 MHz. To make up for this division, the counters are enabled for 20 milliseconds instead of 10.

Readers will realise that feeding 4.6 MHz (9.2 ÷ 2) into a counter for 20 milliseconds will not give a readout of zero, the bottom of some bands, or 500, the bottom of others. To overcome this problem, the counters are preset before each millisecond count period with a number determined by the band in use. This number is derived from the second part of the diode matrix ROM. Another problem solved by presetting the counters is the fact that the bottom of each band does not correspond exactly with 9.2 MHz VFO frequency and the difference varies from band to band, depending on the exact frequency of the local oscillator crystal in the transceiver. For example on 80 metres LSB in the writer's FT101, 3.5000 MHz results in a VFO frequency of 9.20088 and the counter is preset to 7009 (i.e., 9.2009 minus .7009 gives .5000, the megahertz digit being ignored). Similarly on WWV band and AM mode setting 10.0000 MHz corresponds to 9.19983 and the counter is preset to 1998.

Each band, therefore, has such a number stored in the ROM in binary coded decimal form; that is 4 binary digits for each decimal digit. 1998 is stored and presented to the counters as: 0001, 1001, 1001, 1000.
1 9 9 8



The FT101 with Digital Readout Displayed.

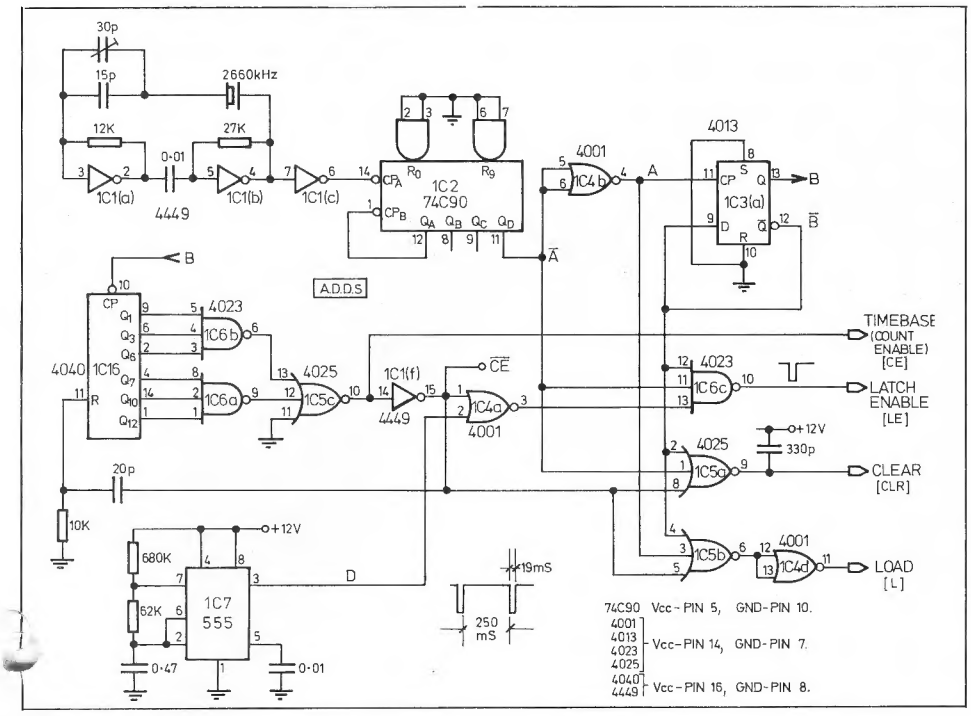
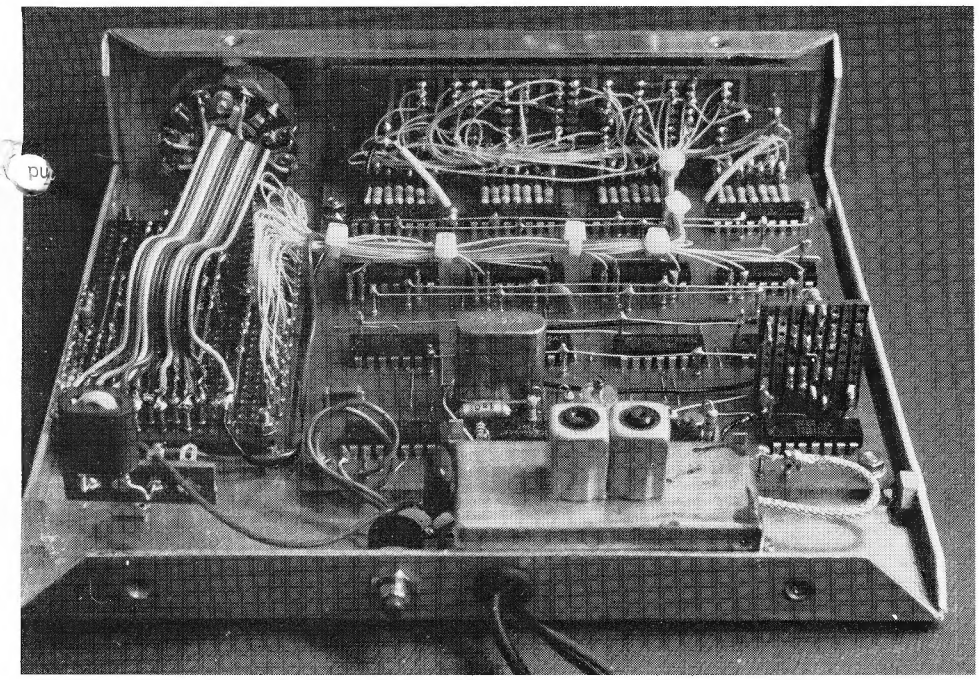


FIG. 2: Crystal Oscillator Control — Gating and Display Oscillator.

Referring to Fig. 1, the remainder of the circuitry is required to generate the time-base; the standard 20 mSec period for counting, the pulses to clear and re-load the counters, the pulse causing the latches to store the frequency recorded in the counters and a display time oscillator which allows only about one in 10 latch enable pulses to go through to the latches resulting in each displayed count being displayed for long enough to be readable, about 250 milliseconds.

CRYSTAL OSCILLATOR, DIVIDER AND GATING

Referring to Fig. 2, inverting buffers IC1 (a) and (b) are connected to form a high gain non-inverting amplifier with the crystal in the feedback path. The crystal therefore oscillates in its series mode and the frequency is finely adjusted with the series trimmer. The oscillator output is buffered by IC1 (c) and then divided in frequency by 10 in IC2 giving a symmetrical square wave at 266 kHz (see waveform A in Fig. 5). Since both this waveform and its complement are required for the gating circuitry, a 2 input NOR gate IC4 (b) is included to accomplish the inversion. The A signal is divided by 2 in IC3 (a), a D-type flip-flop, giving the B signal of Fig. 5 and its complement B.



View showing the Inside Components.

IC16 is a 12 stage divider with all 12 outputs being available to select the division required. A positive spike on pin 11 (Reset) sets all outputs to 0 and the 133 kHz wave on pin 10 (Clock) starts the divider counting. When the count reaches the value required to set Q1, Q3, Q6, Q7, Q10 and Q12 outputs to 1, all others being 0, the outputs of IC6 (a) and IC6 (b) go low and IC5 (c) goes high. This marks the end of the 20 millisecond counting period and after one further negative transition of the clock (waveform B) IC5 is reset to zero by IC1 (f) output going positive. The division in this design is 2661, the number one gets by adding 2^0, 2^2, 2^6, 2^9 and 2^{11} since Q1, Q3, Q6, Q7, Q10 and Q12 are gated to generate the divider reset pulse. This divisor is of course governed by the crystal frequency used and provided certain conditions are met, any crystal frequency may be used up to the value determined by the highest divisor available in IC5, which is 4096. The condition is that 20 times the crystal's period of oscillation must be an integral multiple of 20 milliseconds. That is any crystal from 2 kHz to 4095 kHz may be used provided it is a whole number of kilohertz.

Therefore if an intending constructor has a crystal on a frequency less than 4096 kHz and the frequency satisfies the above condition then the appropriate outputs of the divider are gated together to give the desired divisor.

The display time oscillator, IC7, a 555 timer IC, generates a waveform which is low for 19 milliseconds and high for 250 milliseconds. The latch enable pulses are only generated if the counter enable CE pulse is high while IC7 output is low that is the 19 millisecond period. This time is selected to be slightly shorter than the count period to ensure that every displayed count remains displayed for 250 milliseconds. In the 7.52 uSec period between counts three things must occur. Firstly if it is 250 milliseconds since the previous occasion a count was displayed and the display timing signal (D on Fig. 2) is low, the latches are enabled transferring the 4 digit BCD number in the main counter to latches or storage buffers. This occurs on the positive transition of the LE waveform of Fig. 5.

Secondly and a few nanoseconds later the data in the counters is cleared to zero by the positive transition of the CLR waveform. This very short delay is due to the fact that it takes a finite time for the counters to be reset after the CLR transition is applied. This is fortunate because it ensures that the data in the counters gets put in the latches before the counters are cleared.

The third operation in this period, when the main counters are not counting the

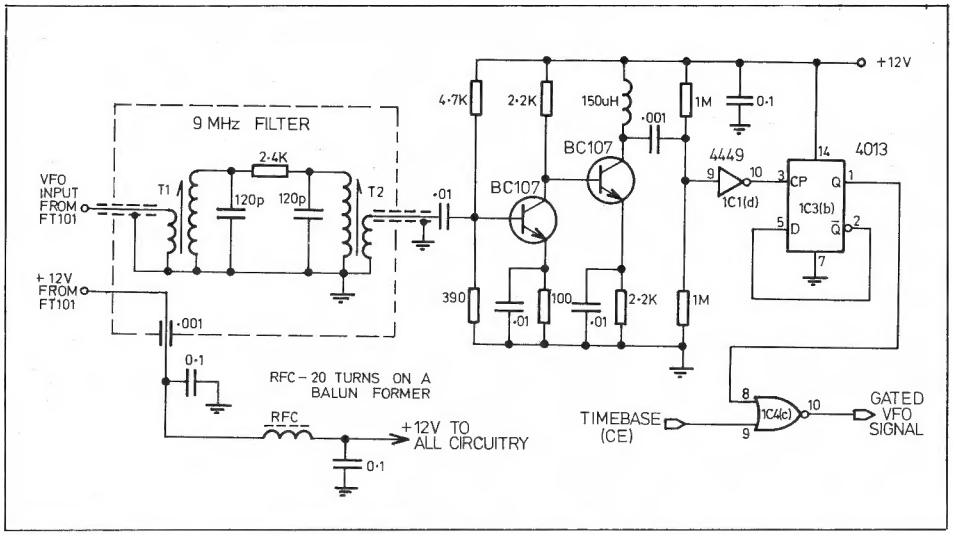


FIG. 3: VFO Filter, Buffer Amplifier, Divider and Signal Gate.

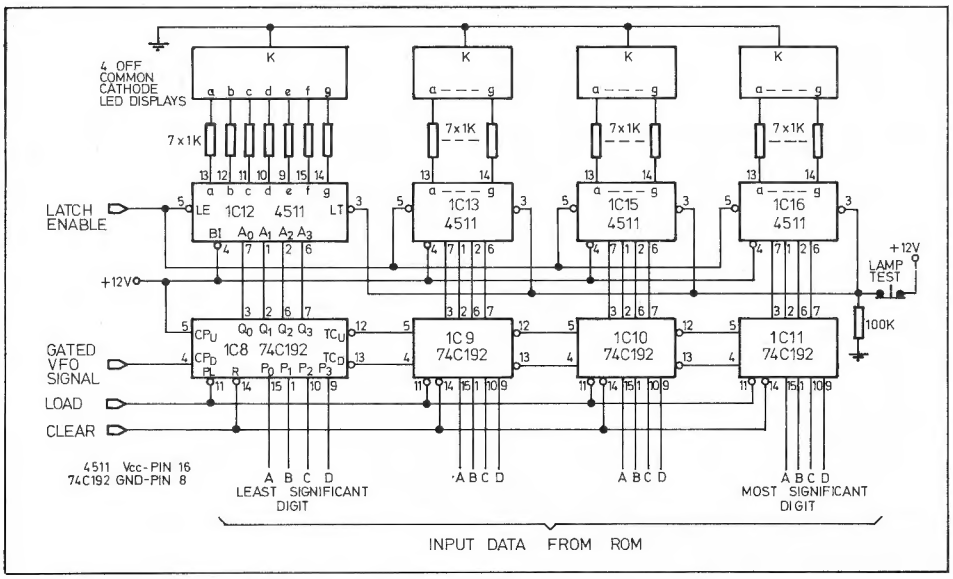


FIG. 4: Counters, Latches and Decoders.

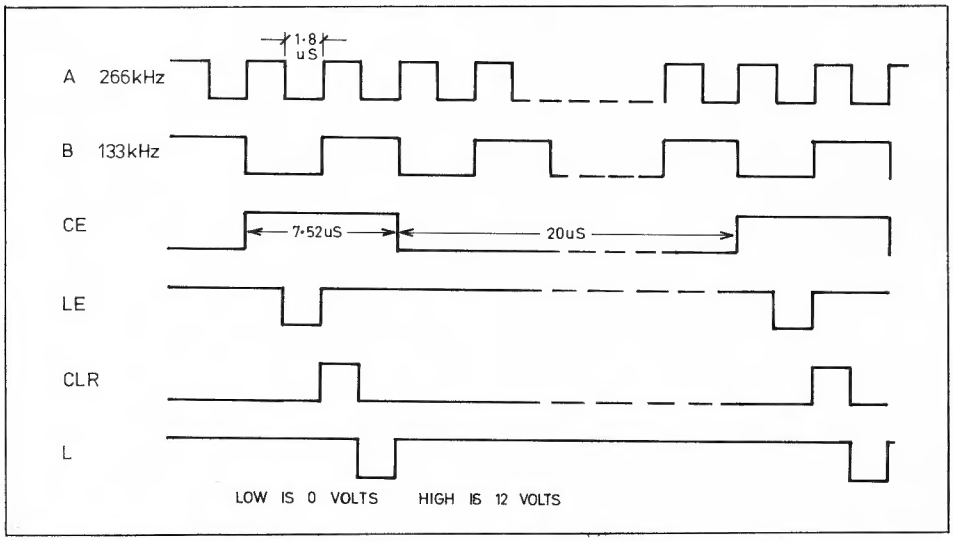


FIG. 5: Waveforms of Fig. 2.

VFO frequency, is the loading of the 4 digit BCD number from the ROM into the counters, giving them the number at which to commence counting. This occurs at the negative transition of the Load (L) waveform.

As can be seen from Fig. 2, these waveforms are generated by 3 gates IC6 (c), IC5 (a) and IC5 (b). The purpose of the 330 pF capacitor on the output of IC5 (a) is to remove a very short unwanted pulse (known as a "glitch") caused by nanosecond delays in the divider IC16. The capacitor is taken to + ve rail and not to chassis as it was more convenient to do this on the printed circuit board.

VFO SIGNAL BUFFER, DIVIDER AND GATE (Refer to Fig. 3)

The transceiver VFO signal, at a level of about 100 millivolts RMS, is applied to a filter composed of two top coupled tuned circuits adjusted to give a sufficient transfer signal over the band 8.7 to 9.2 MHz. The filter is completely shielded in a brass box, mainly to prevent spurious signals from the counter getting back into the transceiver. The filter output at about 20 millivolts is amplified by the two stage transistor buffer and further amplified by the inverting buffer, IC1 (d). The input of this inverter is biased to half of the supply to utilise the device's high gain in its active region.

As mentioned earlier the VFO signal frequency must be halved as the main counters will not operate at 9 MHz. This division is accomplished by IC3 (b), a D-type flip-flop. Most 4013 flip-flops will operate satisfactorily at 9.2 MHz on a 12 volt supply rail but difficulty could be encountered if the supply voltage is reduced significantly.

IC4 (c) is the main signal gate allowing the half frequency VFO signal through to the counters for precisely 20 milliseconds at a time.

COUNTERS, LATCHES AND DECODERS (Refer to Fig. 4)

IC8, IC9, IC10 and IC11 are synchronous, up-down presettable BCD counters with the gated VFO signal applied to the count-down input of the least significant digit (100's of hertz) counter. The counters are cascaded by connecting the carry output of each counter with the count up input of the following one and connecting the borrow output to the count down input.

The load and clear pulses are applied to the appropriate inputs of all four counters and the 4 BCD digits from the read only memory are applied to the data inputs of the counters. The counter output is a BCD number representing the value of the count reached by the counter at that time. This BCD number is applied to IC12, 13, 14 and IC15 respectively which contain latches or memories which store the BCD number at the end of a 20 millisecond count period. Storage of the data is effected only when a positive transition occurs on the latch enable line. This transition must occur sufficiently infrequently to enable one to see the number displayed before the next count is displayed.

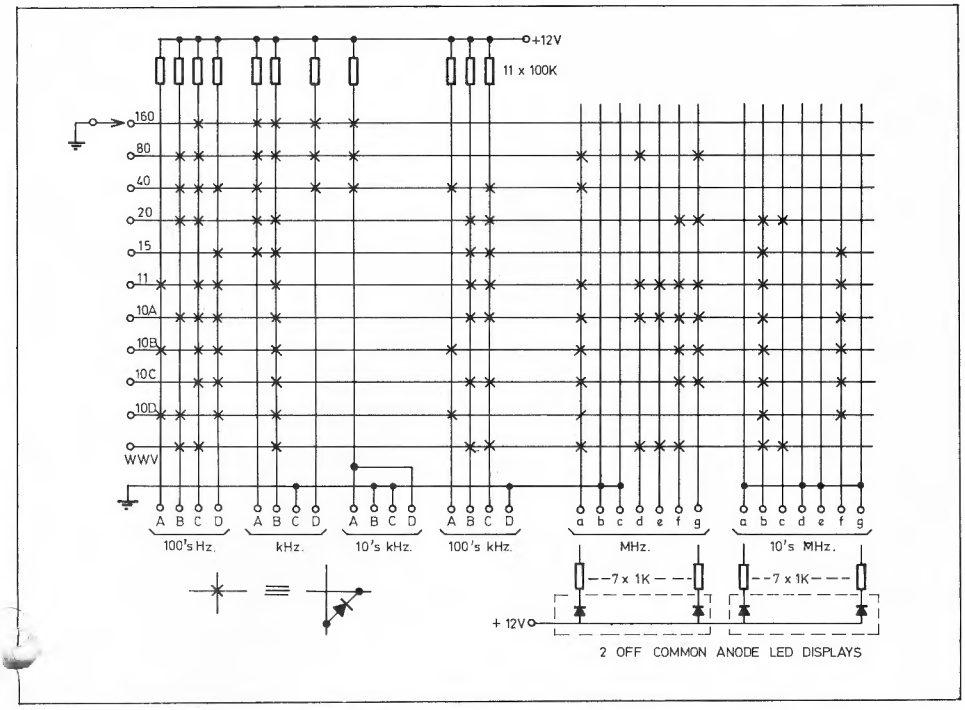


FIG. 6: FT101 Digital Readout ROM.

The 4511 IC's also contain BCD to 7 segment decoders and circuitry to provide sufficient drive current for the 7 segment common cathode displays. The decoders convert the BCD digit on 4 lines to 7 lines to give the required decimal digit. A lamp test facility is provided to check that all segments of the displays are working. When a logical low is applied to the lamp test input a figure 8 is displayed on all four digits independent of the data inputs. This is accomplished by the normally closed push-button connected to the positive supply.

DIODE MATRIX ROM

The matrix consists of 11 horizontal rows, one for each band on the FT101, and 30 vertical columns, 16 for the 4 BCD numbers loaded into the counters and 14 for the two 7 segment megahertz digits. In the first part of the ROM giving the BCD numbers, referring to Fig. 6, at each intersection of a row and a column where a logical O (Low voltage) is required on that data line on that band, a diode is included between the row and column.

In the second section of the ROM where a particular segment is required to be illuminated on a particular band a diode is included at that matrix intersection.

CONSTRUCTION

Most of the components are mounted on two printed circuit boards, one carrying the 6 LED displays, mounted vertically on the other larger board. This latter takes most of the circuitry and is single sided but with numerous links and rails above the component side. The display time oscillator IC7 is wired on an outboard piece of veroboard mounted vertically on the main board.

The VFO filter is mounted in a small brass box at the rear. The positive supply from the transceiver also enters the filter box leaving it through a 1000 pF feed-through capacitor.

Intending constructors should make sure to carefully shield the VFO signal line, earthing the braid at one point on the read-out chassis and at the etxernal VFO socket on the FT101. If the shielding is not done carefully spurious signals will get into the receiver. Solid S9 birdies were noted at various stages during development but these were eliminated by careful shielding.

The read only memory is constructed on Veroboard with the columns formed by tracks on the board and the rows formed by wires supported by matrix board pins. The diodes and the 100K resistors are mounted vertically while the IK resistors limiting current to the LED megahertz displays lie flat.

Great detail of the construction will not be included here as the writer would not expect readers to duplicate the readout device exactly. However, if a demand exists sets of printed circuit boards with much improved layout could be made available. Cost of the IC's and LED displays is $40-$50 for this project, going on prices current at the time of writing. ■

80 CHANNELS FOR THE ICOM IC22S

Reprinted from APC, July 1977.

G. Percy VK3ZQP
22 Cotswold Cres., Springvale South, 3172

Most of you will have seen or heard the new Icom IC22S rig which is the latest version of the popular IC22.

Whereas earlier IC22's used crystals, two for each channel required, the IC22S uses a Phase Locked Loop Synthesizer. Unlike other synthesized rigs, the IC22S uses a conventional 22 position switch wired up to a diode matrix inside the unit. Up to eight diodes are used for each channel that you require, in a combination unique to that channel.

An IC22S was purchased and fitted to the car and many contacts were made on the various channels fitted, namely seven repeater and three simplex. Other operators were then heard QSYing to various "private" channels and other channels which were not programmed into the IC22S.

The thought occurred that this could be done on the IC22S by using an external programming unit to select the required channel in addition to those already programmed into the rig.

Thus facilities similar to other switch programmable rigs could be obtained. In the case of the IC22S, all 25 kHz channels in the WIA band plan can be "dialled up".

After examination of the IC22S circuit, and a couple of hours of thought and doodling, it was apparent that three switches, to dial up the frequency required, would have to be decoded with logic circuits to set up the required diode pattern in the rig.

To select any 25 kHz channel from 146 to 148 MHz, it is apparent that 80 combinations of the 8 diodes in the IC22S must be manipulated by the logic circuit. Since the rig already uses CMOS chips in the synthesizer, it was decided to also use CMOS in the external programmer unit.

No attempt will be made to explain exactly how the circuit works, step by step, as this is beyond the scope of this article.

In use, to use the programmer, position 22 on the IC22S channel switch is selected, which makes available the eight diode positions in the matrix to the 9 pin socket at the rear of the IC22S. The +9V supply via channel 22 position is also wired to the socket. Earth is obtained through the ground return of the car. The programmer may be left plugged in at all times since it is only activated when the channel switch is set to position 22. Current drain is about 5 mA.

The three switches on the programmer are used to select the required channel. Frequency is read directly from the switch positions.

IC22S with Home Brew Channel Synthesiser.

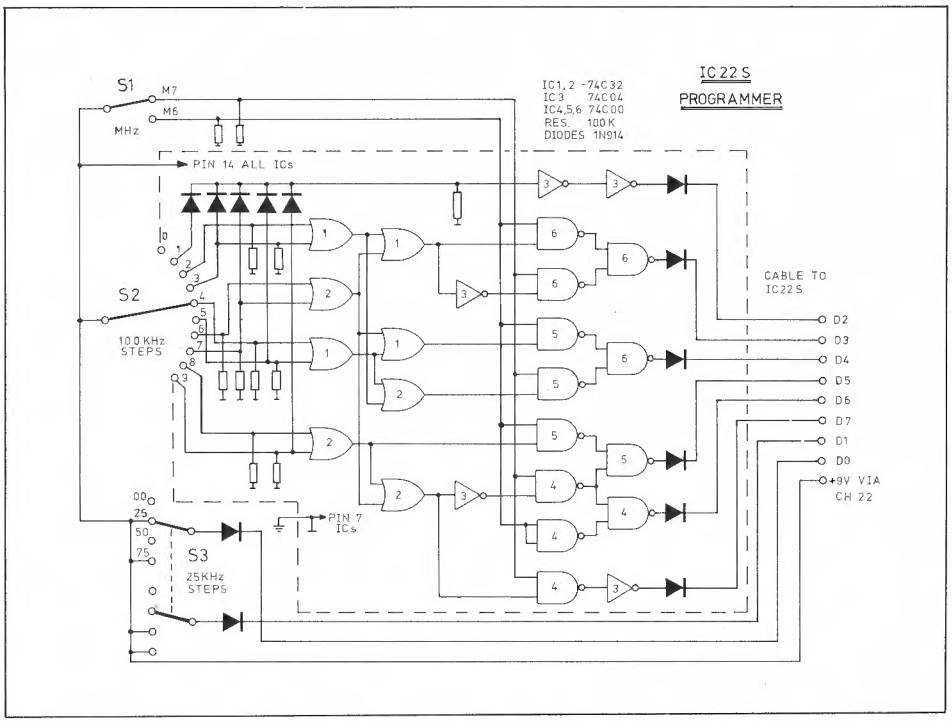
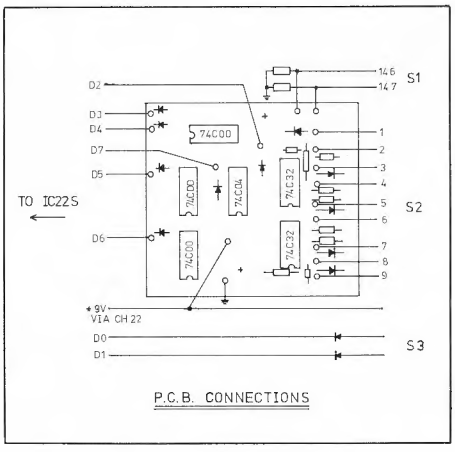


FIG. 1: Above.

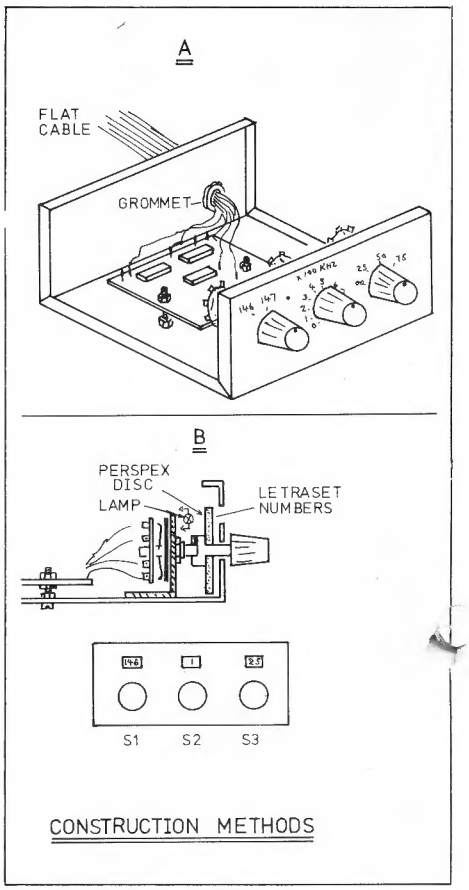
Fig. 2: Right.

The whole logic circuit is built up on a double sided printed board approximately 3 in. x 2.5 in. and is mounted in a small aluminium case with the three switches on the front panel. This box can then be mounted in any convenient position in the car. A suggested position would be under the IC22S attached to the cradle support bracket.

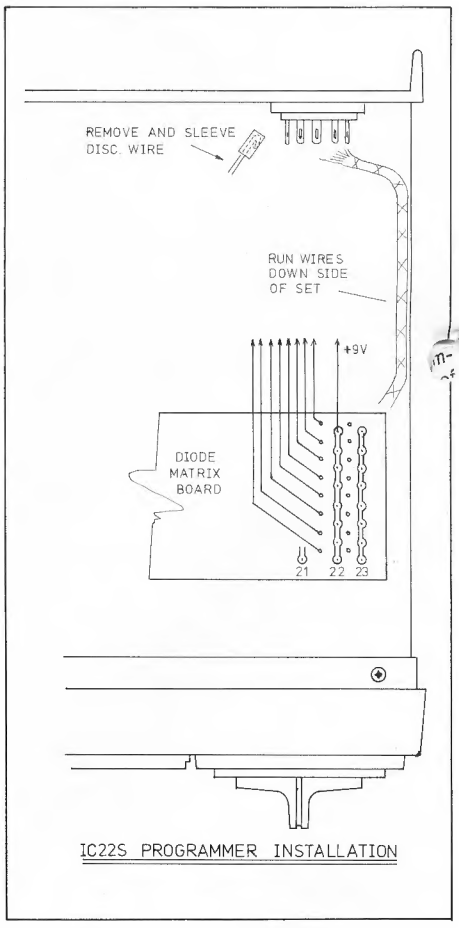
A digital readout of the frequency selected could also be made but this was rejected on the grounds of cost and the doubtful advantage to be gained.



P.C.B. CONNECTIONS



CONSTRUCTION METHODS



IC22S PROGRAMMER INSTALLATION

All of the CMOS chips are readily available and cost about 40c each. The switches are standard Oak types, or similar, and are, in fact, the most expensive parts in this project. Thumbwheel switches could be used but are expensive and difficult to manipulate whilst mobile.

Total cost of the unit should be less than $15, according to the state of the "junkbox".

After constructing this unit, it was found that a similar unit is available in the US (N.B.: 15 kHz steps though) and retails for US$75. Its' easy to see the advantages of home brewing!

Construction is simply a matter of soldering the appropriate bits into the board, connecting the switches, mounting in a box and plugging into the IC22S. Ten way flat ribbon wire can be used to connect to the IC22S. NORMAL HANDLING PRECAUTIONS WITH CMOS SHOULD BE TAKEN AS A SAFEGUARD, although no damage to any chips was made when constructing the prototype.

The IC22S is modified slightly by removing and taping the discriminator wire from the accessory socket and wiring the eight diode positions to the socket along with the +9V rail from position 22 on the channel switch. This point is also made from the diode matrix. That's it. These mods can be easily removed later if you wish.

Actual coverage of the unit, as presented, is all 25 kHz steps from 146.000 to 147.975 MHz inclusive.

PLEASE NOTE:
THIS UNIT CAN ONLY BE USED ON THE IC22*S* AND NOT ON THE EARLIER VERSIONS OF THE IC22. Sorry.

If sufficient people are interested, a printed circuit board will be made available, at cost. Probably about $5, depending on quantity made. ■

NCRA CONVENTION ADDRESS — SENATOR KNIGHT

Address by Senator J. W. Knight, Senator for the ACT, to the first National Convention of the National Citizens Radio Association, Canberra, 3 September 1977.

Mr. Chairman, Ladies and Gentlemen:

It gives me great pleasure to have been invited on behalf of the Government to address your first national conference.

The Minister for Post and Telecommunications, Mr. Robinson, is unable to be present today and has asked me to convey his apologies.

I am especially pleased that you have chosen Canberra as the convention venue.

This is not only because Canberra is the National Capital but also because in Canberra, I understand, the use of CB radio is not only well established but well controlled.

I have been told by officers of the Minister's department that they are very satisfied with the way that the local group organisations run their affairs and the way in which regulations are complied with.

There is another reason for my having some satisfaction in addressing you.

In Canberra the amateur radio operators, through the Wireless Institute of Australia, are working very closely with Citizens' Band Clubs.

This is particularly pleasing to me as some of you may also be aware that my father is a keen amateur radio operator.

This co-operation is gratifying and it is hoped that it will spread to other areas of Australia.

There have been many significant social, economic and related changes in Australia over the past twenty years.

Many of these changes have resulted from advances in technology.

Probably one of the most dramatic technological developments has been in the field of electronics.

This has allowed inexpensive portable two-way radio equipment to come within the reach of the ordinary citizen.

Not surprisingly these developments led to pressure on the Government to introduce a CB service.

While to many the issues were very clear and simple, the introduction of a radio service is very complex and not without its difficulties.

To preserve the radio frequency spectrum allocated to Australia it has always been necessary to carefully restrict radio communication services to meet needs which could be demonstrated as essential and which are generally in accordance with the philosophies of the International Telecommunications Union.

Australia is a major user of the radio frequency spectrum because of our widely spread cities which are vast distances apart.

Another particular concern of any administration is the possibility of interference caused by transmissions in the high frequency part of the spectrum.

This was, of course, very significant in considering the introduction of a CB service in Australia.

In reaching its decision to introduce a CB service the Government was anxious that Australian manufacturers be given an opportunity to compete in the CB market.

The Government also believed that because of the significant technological advantages that it offers, the UHF band was most suited to CB radio.

The Government is hopeful that CB operators will change over to UHF as quickly as possible.

One of the considerations in the introduction of any new service and something which still has to be resolved in relation to CB is that of maintaining discipline within the ranks of CB operators.

Governments can introduce legislation of one kind or another to achieve discipline or supervision.

Our approach to the question of supervision starts at a different point.

A scheme of self-regulation may be possible.

It has the advantage of minimising the Government's involvement and allowing citizens more freedom and choice in their activities.

I am sure everyone will appreciate it is extremely difficult for governments to consult with all members of the community. For this reason we would encourage the development of organisations to represent the view of particular groups.

This enables government to have a clear point of contact with groups in the community in order to consult with them on matters of mutual interest or concern.

This is essential in any scheme of self-regulation.

A fully representative organisation is seen as a definite need in the field of CB radio; it is something to which I hope this conference will address itself with a view to furthering that objective.

It is indeed unfortunate that the introduction of the CB service in Australia has to some degree been frustrated by recent events. The Minister has instructed his department that no one wishing to obtain a licence is to be disadvantaged because of the current industrial dispute within his department; this dispute is now before the Public Service Arbitrator and it is hoped that it will be resolved shortly.

I would like to talk briefly about the Citizens' Radio service and how it compares with other radio communications services.

Radio communication services in Australia generally operate with a discrete frequency for a specific purpose.

The Citizens' Radio service varies because in fact it has a number of frequencies and operates for the purpose of personal short range communications.

Protection is given to radio communication services by regulations which set technical specifications to ensure that equipment does not have inherent faults which will cause interference to other services.

Regulations are also employed to avoid interference to the operations of a particular radio communication service.

However, governments do not generally involve themselves in the actual operations within the service. The confusion arises because some people expect this.

It is not the intention to intervene in the use of the frequencies allocated to the Citizens' Radio service except in two areas.

To ensure all operators are properly licensed and that the few regulations provided, such as prohibition on obscene language, hoax calls, etc., are complied with.

In effect, it is expected that the Citizens' Radio service, like other radio communication services, will be self-regulated.

Given these few constraints upon the service it is still apparent that there will be

areas for discussion between the Government and the user.

As mentioned earlier, some discussions have already taken place.

The results of those discussions are reflected in a new draft specification (I believe it is called RB 14) which I understand is to be made available at this convention.

The Government is giving notice of its intention to change rules and regulations affecting the service, release the document for public discussion, allow time for submissions to be received, and only then finalising the formal document.

I would now like to make some further comments about the regulations governing the CRS.

The regulations are few in number; they largely deal with technical specifications.

Every other radio communication service has many more restrictions placed upon it.

It is not considered difficult for people to comply with the conditions and this includes both the operators and the retailers of equipment.

There is concern about advertisements now appearing in specialised CB publications which advertise the sale and availability of equipment designed to be used in the amateur service only.

The same applies to the advertisement for power amplifiers.

The Minister wishes it to be made quite clear to everyone concerned that the Government will not stand by and allow pirating activities into other authorised services. Nor will we stand by and allow power amplifiers designed for another frequency to be sold for and used within the Citizens' Radio service.

It is the Government's view that strong action should be taken to ensure that other authorised services are protected and that licensed operators in the CRS comply with the regulations.

The Government is presently preparing a new Radio Communication Act to replace the existing Wireless Telegraphy Act.

It is expected to be introduced in the 1978 autumn session of Parliament. The present Wireless Telegraphy Act was introduced in 1905 and some of its provisions are now outdated and do not fully cover the advances made in technology in the last 70 years.

The new Act will rectify those faults. The Act will also make provision to strengthen the Government's control over regulation of services.

Drafting of the new Act is now taking place and the Government is willing to accept submissions from interested bodies in the community who are involved in radio technology.

In a short time it is hoped the UHF CB service will commence.

It is understood that manufacturers will have the equipment available for sale early in the new year.

I note that one of your speakers is a representative from a manufacturing firm engaged in producing this equipment.

No doubt he will be speaking to you about what lies ahead in using this technology.

There are two final matters I would like to raise.

It has been suggested that the Government's decision in relation to the acceptance of the interim HF service transfers an illegal operator situation of 1977 to 1982.

This is not the case.

In 1982 operators of HF equipment will only be allowed to continue using that equipment under the auspices of the Amateur Radio service.

Five years is sufficient time for people to obtain qualifications as amateur operators.

It may well be that modifications to the existing examination procedures and restrictions will take place in this five year period.

The Wireless Institute of Australia has already lodged a submission seeking changes to some of their operating restrictions.

These are now being studied.

Finally, I turn to the present licensing system.

The Citizens' Radio service is the first new radio communication service introduced in Australia for many years.

From the licence applications received to date it appears to be the second largest service to be administered by the department.

The Government is encouraged by the operating practices of most of the people involved, particularly those who are members of the Citizens' Radio service clubs.

It is to be hoped that this will continue and that all operators will comply with the regulations laid down.

It is a service for all citizens in the community.

The way is clear for its users to make it a valued means of communication.

I trust that here at your first national convention you will set the scene for conduct and regulation of the service for the future.

Accordingly, Mr. Chairman, I now have pleasure in formally opening the convention and wishing you well in your deliberations. ■

DO AMATEURS SUFFER FROM THEIR IMAGE?

From Westlakes Radio Club — Monthly Newsletter, October 1977.

Recently, whilst talking to a member of an electronics organisation who had been engaged in interviewing prospective candidates for a research post, he mentioned one such applicant who met the requirements and continued — "the only thing I have against him is that he is a 'ham'."

This was quite a serious statement, and when I asked the reason for this, his reply was that "most of the 'hams' he had met were rather talkative, fanatical fellows who never knew when to stop 'hamming' and start working." Compared with the American electronics companies who are proud to publish lists of licensed amateur employees with their advertisements (see QST for example), this attitude was somewhat startling and to find out what people in the vicinity thought about us, a survey was taken among twenty average members of the public and asking them: "What do you think of radio amateurs?"

(a) Nine blamed us for all the TVI and BCT.

(b) Three thought we were "nut cases".

(c) Five thought were were "odd fellows" but harmless.

(d) Three did not know we existed.

On soliciting the opinions of five leading members of the electronics engineering world, e.g., Ph.Ds., company heads, research leaders, etc.:—

(a) Two would not employ radio amateurs in their organisation (no reason was given).

(b) One had listened on his shortwave set and had the opinion we talked a lot of tripe. He had doubts about offering technical employment.

(c) One said he thought most technical blokes talked a lot of tripe anyway, so he would not risk employing an amateur.

(d) One said it would depend entirely on his qualifications.

Since this survey covered people in a 50 km radius of club premises, and couldn't be called local opinion, it is indeed food for thought — perhaps the time has come for us to take a good look at ourselves and our activities.

Obviously, since the time spent on the air is in effect our "shop window", we must give some thought to our topics of conversation if we are to dispel this somewhat weird opinion of our activities. We know we are not *all* nut cases, and have other things to talk about apart from the weather. However, taking a listen around 80/40 and 20 recently did raise a problem of how to dispel criticism! We *do* hear a lot of tripe, you know, aid whilst it would be wrong to wish that every station would start being frightfully technical, there's an awful lot of cleaning up to be done.

To sum up the situation, we do not present a very good picture to the eavesdropping layman. It is, one agrees, just a hobby, just as woodwork or bowls is to others, but one *can* perfect even a hobby, and be proud of the way it is presented.

So there you are — whether we know it or not, we have a large audience of laymen who on performance or behaviour of one amateur, form an opinion of us all as a group. Who cares? Well, we do, for one. One would like to hear of an amateur being employed because he is a "ham" and not being dismissed from mind for that very reason. ■

1K MEMORY FOR 8 BIT BAUDOT CODE

H. G. Kociemski VK4ZAP

This article complements a previous article "Teletype Message and Keyboard Generator" (AR Dec. 1976). You will need to refer to this previous article.

The circuit is simple and is based on the National Semi-conductors 5058 integrated circuit, which is a most incredible device. The 5058 is a 1024 bit shift register (S/R) in an 8 pin package. A few years ago one would have been staggered at the thought. A look through the National MOS Data Book will reveal many fascinating applications of MOS technology. This static shift register can store 1024 eight bit words (characters).

Considering 72 characters can be printed on a teleprinter page and allowing for a few more locations in the shift register for carriage return (C/R), line feed (L/F), letter shift (L/S), figure shift (F/S) then up to 1½ lines of Baudot (RTTY) code can be stored.

Hence the S/R is used as a "Linear Memory" serial memory — Ed.), unlike the parallel memory where the 5 units of code are fed to 5 separate memories simultaneously. The latter circuit would have greater capacity but would be more complex, and anyway the 128 characters capacity is entirely satisfactory for my applications.

As an example, the following message can be stored, fed out to the transmitter when required and even recirculated over and over again.

THE QUICK BROWN FOX JUMPED OVER THE LAZY DOGS BACK F/S 0123456789 C/R L/F.

THIS IS VK F/S 4 L/S XXZ TESTING ON F/S 146.60 L/S MHZ C/R L/F.

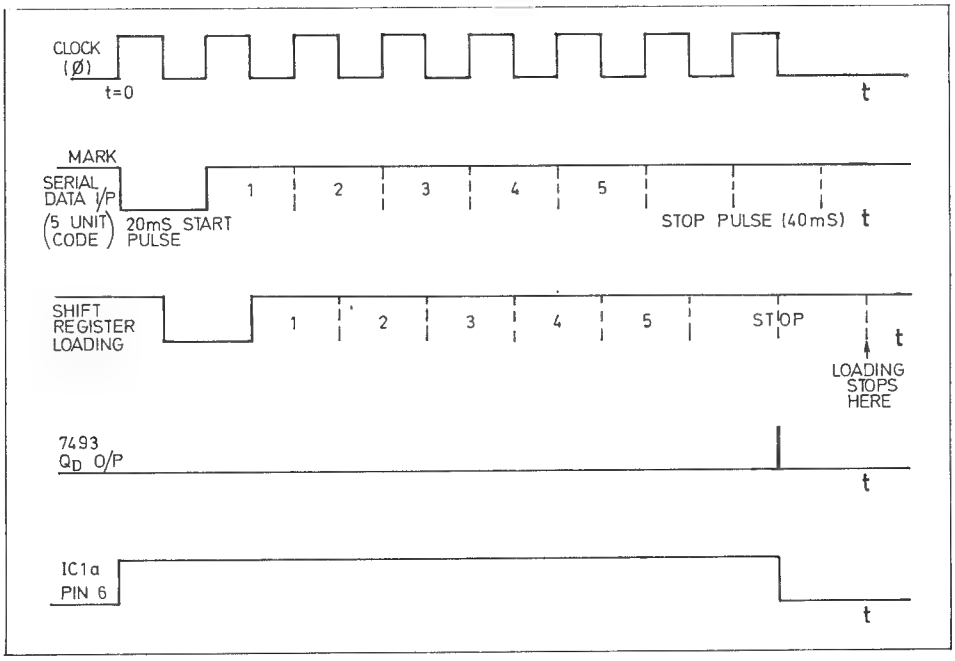


FIG. 2.

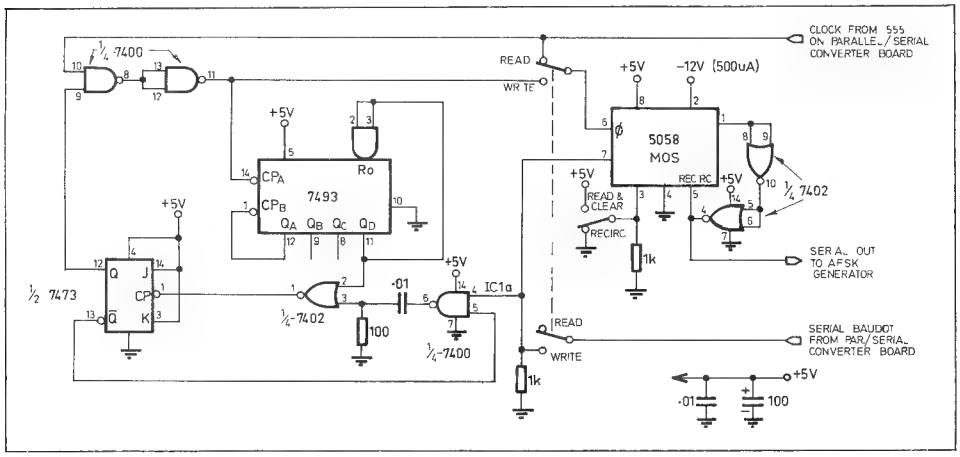


FIG. 1.

This message employs about 109 characters including spaces. The rest of the memory is filled with spaces.

OPERATION

With the READ/WRITE switch in the WRITE position the first trailing edge of the serial Baudot (start pulse) appears at pin 4 of the nand gate (IC1a), the output of which goes high. The step response of the following RC circuit produces a high at pin 3 of the nor gate followed by a fast exponential decay.

Hence for an instance the output of the NOR gate activates the flip-flop 7473, pin 12 of which goes from low to high thereby causing the clock-inhibiting NAND gate to open. At the same time pin 13 of the 7473 goes from high to low thereby deactivating IC1a, preventing unwanted toggles of the flip-flop.

The 7493 counter counts the clock trailing edges and resets after the eighth transition. The D output, pin 11 of the 7493, also resets the 7473 flip-flop, thereby inhibiting the clock pulses and activating IC1a.

So the previous process has allowed 8 clock pulses to reach the clock input of the 5058 memory, initiated by the start pulse of the serial Baudot. Now each of the 8 bits of Baudot (start pulse, 5 data bits, 2 stop pulses) are addressed to their sequential positions by the 8 clock pulses. The next character may follow instantaneously. The output of the 5058 doesn't have enough swing to drive the recirculate input (pin 5) so the 2 NOR gates are used as amplifiers.

Reading is entirely a matter of clocking pin 6 of the 5058 continuously.

POSTSCRIPT

Norm VK4NP has developed a VDU and keyboard system that I recommend. A complete and comprehensive description is available from his QTHR for $50.00. This includes the circuit board layout. On air it gives a credible professional performance. ■

COMMONWEALTH CONTEST 1977 RESULTS

The following is extracted from the RSGB results of the 1977 contest:

1. ZL3GQ — 4777 points.
2. VE7CC — 4606 points.
3. VE7UZ — 3856 points.
4. ZL2BR — 3658 points.
5. VE3AKG — 3656 points.
6. G3FXB — 3583 points.

Receiving Section:

1. Eric Trebilcock BCRS195 2195 points.

Australian Scores:

8.	VK5NO	3431	61.	VK7RY	1000
10.	VK2BPN	3293	78.	AX4XJ	711
15.	VK2GW	2925	80.	VK2NS	690
19.	VK7BC	2455	84.	AX7HE	641
23.	AX3XB	2250	87.	VK4KX	610
26.	VK3ZC	2128	87.	VK6VK	610
27.	VK3XU	1990	91.	VK2XQ	575
35.	VK5DL	1600	92.	VK2HC	545
36.	VK7CH	1575	93.	VK6SM	530
37.	VK7RO	1565	96.	AX3KS	425
39.	VK3YK	1536	98.	VK3CG	376
44.	VK6AQ	1325	100.	VK3RJ	345
47.	VK5KL	1270	103.	VK5FG	300
53.	AX4XA	1211	104.	VK3YL	225
59.	VK7JB	1075	104.	VK7ZO	225

Single band entries among the above were: 21 mc VK3RJ. 14 mc AX4XA, AX4XJ, VK6VK, VK6SM, VK3YL.

A check log was received from VK3PT.

A log from K7OB claimed score 2475; was not accepted as it did not contain signal reports.

The total Australian entry at 30 was marginally down on last year's 34. ZL did well with first and fourth out of a total seven entries.

Many exotic calls appear in the results, of which ZD8DO, ZB2CJ, VP8ON, ZE3JO and VU2GO are not known to have been worked from this area.

Scoring details, QSOs/Bonus areas per band, 80 to 10 metres are shown for the leaders:

ZL3GQ	33/28	94/38	165/49	45/34	10/9
VE7CC	36/28	48/35	155/54	62/39	7/7
VE7UZ	34/29	39/31	89/47	44/32	3/3

AUSTRALIAN AWARDS

Jack Batchler VK7JB takes out the Bronze Medallion for the middle placing.

RSGB COMMENTS

The 1977 event seems to have been conducted under very similar conditions to the previous year. Conditions for stations in Europe were rather indifferent while trans-Pacific paths for Australia, New Zealand and western Canada were very active. The HF Contests Committee was delighted to find a 10 per cent increase in the number of logs for the transmitting section. This must be partly due to the excellent publicity for the event in Australia organised by John Tutton VK3ZC, and Eric Trebilcock BCRS195. We regret the poor publicity in New Zealand and Canada but are taking steps to improve this for next year.

The overall winner this year is Peter Watson ZL3GQ, whose excellent signals on all bands gave him a total of 347 QSOs. Last year's winner, Lee Sawkins VE7CC, is in second place. For the fifth year in succession, Al Slater G3FXB, wins the Col Thomas Rose Bowl as the leading UK station.

In the single-band sections, 14 MHz is the only band to attract many entries. The leader here is Stuart Jesson G4CNY, who made 108 QSOs. In second place is Chris Page G4BUE. The overseas leader on 14 MHz is R. Coleston AX4XA, who had 91 contacts. G4NCY used a T4XC/R4C combination with a 2-el quad and AX4XA used a FL200/AR88 with a 3-el Yagi.

As last year, the number of entries in the listening section is disappointing. Last year's winner, Eric Trebilcock BCRS195, again wins the Receiving Rose Bowl and deserves congratulations on his 36th "BERU" entry.

All the comments included with the logs were read with interest by the committee. There would appear to be no great dissatisfaction with the rules. The only area of debate is on the duration of the contest, with a few entrants preferring a resumption of the 48-hour period or similar with rest periods. There is some comment on the continuing clash with the WSEM contest. Unfortunately, although RSF (the USSR National Radio Society) is a member of IARU and has the facility of advertising its contest calendar in the IARU journals, it continues to be impossible to find out in advance the dates of these contests. In addition, given the very full contest calendar at this time of the year, unless the contest were to be moved to a completely different period it would be difficult to find an alternative date.

BERU 1978 is 11/12 March. Rules unchanged, but further notification in February Amateur Radio.

The Silver Medallion for the leading VK entrant was won by the late "Tubby" Vale VK5NO. ■

BOOK REVIEW

RADIO DATA REFERENCE BOOK
Fourth Edition. T. G. Giles G4CDY and G. R. Jessop, GGJP. Published by the Radio Society of Great Britain.

This book is one of the musts for any amateur radio operator. It is packed full of all that useful data and tables that are in continual use.

The new edition has been revised and new sections added with the data grouped into sections.

New sections dealing with transistors and heat sinks and modern filter design have been aded. They are full of easily used data.

The section on band usage and allocations, whilst not directly applicable in Australia, has a lot of useful information.

A very comprehensive and useful book which has a place in every shack. It may be obtained from Magpubs or from your favourite technical bookshop.

VK3AUI. ■

QSP

1978 SUBSCRIPTIONS

The following are subscription rates approved by Divisions for members in the 1978 year.

Members are reminded to send the amounts due direct to the Executive Office, P.O. Box 150, Toorak, Vic. 3142 as early as possible so as to avoid the automatic stoppage of AR through becoming "unfinancial".

Please do not wait until a Final Notice reaches you because this can be a costly matter for the Institute.

1978 Rates	$	Grade
VK1	21.00	all grades
VK2	20.00	FC
	18.00	AT
	15.00	Students (on proof)
	10.00	Pensioners (proven)
	10 00	Family (no AR)
VK3	23.00 + 2.00	FC
	20.00 + 2.00	AT
	14.00 + 2.00	Students (on proof)
	13.00 + 2.00	Pensioners (proven)
	17.80	F or C family (no AR)
	14.80	A or T family (no AR)
VK4	20.00	FA
	18.50	CT
	13.00	Pensioners & Clubs with AR
	7.50	Students (on proof)
	5.00	Clubs (no AR)
VK5	20.50	F
	19.00	ACT
	9.00	Pensioners
	9.00	Students (on proof)
	2.00	Junior Students (no AR)
VK6	20.50	FC
	19.50	AT
	12.50	Pensioners
	12.50	Students (on proof)

		$	
VK7	Post Codes 7000-7205	19.00	FACT
	Post Codes 7212-7304	18.00	FACT
	Post Codes 7307-7467	17.00	FACT
		10.00	Pensioners
		10.00	Students (on proof)

New members — joining fees VK2 — $2.00, VK7 — $1.00

Federal dues are included in the above rates as appropriate — these are Exec. — $7.50, IARU — $0.30, AR — $7.20

Explanation of symbols: (city — metropolitan capital)
F — Full member, city
A — Associate member, city
C — Full member, country
T — Associate member, country
G — Pensioners (proven)
S — Students (on proof)

NOTE: If a student in 1977 is no longer a student for the 1978 year the rate payable will be F or C if in possession of a call sign, A or T if not in possession of a call sign. ■

HF INTERNATIONAL

HF International is a group of worldwide pirates on the HF bands. They generally operate in the original 11 metre segment, more recently in the area now used by the expanded 40 channel system (and by the recent monitoring of this 40 channel region it looks like there are plenty of sets on sale so the CRS is not confined to the 23 or 18 intended channels). HFI overseas have moved into the lower portion of 10 metres as well as other spots of the HF spectrum. Their presence has been noted on the 14 and 21 MHz amateur bands as well as the commercial and other services space adjacent to these bands. In Australia there are between 600 to 1000 such operators and there was recently an international conference of HFI in America. It is the American end which controls the issue of "their" callsigns. The Australian end has reportedly asked for a block of a further 1000 "callsigns". Their world numbers are unknown but are believed to exceed 100,000 . . . we would do ourselves a favour by monitoring and reporting these pirates to the appropriate authority.

—Information VK2AWJ
From "The Lyrebird", Oct. 77

ELECTRONIC ENTHUSIASTS EMPORIUM

POPULAR INTEGRATED CIRCUITS IN STOCK

CA3012
CA3013
CA3018
CA3023
CA3028A
CA3035
CA3039
CA3046 LM3046
CA3053
CA3059
CA3060
CA3079
CA3080
CA3081
CA3082
CA3083
CA3086 LM3086
CA3089E
CA3090Q
CA3091
CA3120E
CA3127E
CA3128E
CA3130T
CA3140T
CA3600
CD4000
CD4001
CD4002
CD4006
CD4007
CD4008
CD4009
CD4010
CD4011
CD4012
CD4013
CD4014
CD4015
CD4016
CD4017
CD4018
CD4019
CD4020
CD4021
CD4022
CD4023
CD4024
CD4025
CD4026
CD4027
CD4028
CD4029
CD4030
CD4031
CD4035
CD4040
CD4041
CD4042
CD4043
CD4044
CD4045
CD4046
CD4047
CD4049
CD4050
CD4051
CD4052
CD4053
CD4066
CD4068
CD4069
CD4070
CD4071
CD4072
CD4075
CD4076
CD4078
CD4081
CD4082
CD4085
CD4086
CD4093
CD4502
CD4503
CD4510
CD4511
CD4514
CD4515
CD4516
CD4518
CD4519
CD4520
CD4528
CD4539
CD4555
CD4556
CD4720
CD4724
CD40097
CD40098
CD40174
CD40175
CD40192
CD40194
CD40195
DM8097 1.90
HEF see "CD"
LH0070
LM114H
LM301AN
LM301CN
LM304H
LM305AH
LM307N
LM308V
LM309K
LM310N
LM311A
LM311H
LM312H
LM317K
LM318N
LM319H
LM319N
LM320K
LM320T
LM322N
LM323K
LM324N
LM325N
LM326H
LM339N
LM340K
LM340T
LM349N
LM358N
LM370H
LM371N
LM372H
LM372N
LM373N
LM374N
LM375N
LM377N
LM379
LM380N
LM381N
LM382N
LM387N
LM395K
LM555CN
LM555H
LM556N
LM562B
LM565N
LM566CN
LM567CN
LM709N
LM710CN
LM710CH
LM723H
LM723N
LM725N
LM733CH
LM733N
LM741CH
LM741CN
LM747CH
LM747CN
LM748CN
LM1303N
LM1310N
LM1458N
LM1488N
LM1489N
LM1496N
LM1808N
LM3028 CA3028
LM3046
LM3086
LM3900
LM3905
LM3909
MC1035P
MC1312P
MC1314P
MC1315P
MC1350P
MC1351P
MC1454G
MC1458 LM1458
MC1468L
MC1488 LM1488
MC1496K
MC1590G
MC14553
MC1648P
MC4044P
OM802
SAJ110
SAK140
SD305DE
SD306DE
SL415A
SD425A
SL437D
SL440
SL442
SL447
SL449
SL610C
SL612C
SL613C
SL620C
SL621C
SL623C
SL622C
SL624C
SL630C
SL640C
SL641C
SL645C
SL901B
SL917B
SL1310
SL3046
SP8505
SP8515
TAA300
TBA570
TBA700
TBA810A
TB1750A
TCA220
TCA290A
TCA420A
TCA580
TCA730
TCA740
TDA1005
UAA170
UAA180
UA723C LM723
UA757
ULN2208
ULN2209
ULN2111
74C00
74C02
74C04
74C10
74C14
74C20
74C85
74C86
74C90
74C154
74C160
74C162
74C174
74C192
74C901
74C925
80C95

MISC

AL5352
GL4484
GL5253
OL31
RL4484
RL5023
FND357
FND500
9001
9368
9601
NSN71
NSN74
TIL306A
11C90
95H90
2102-2
2513N
S1883
S50242
MA1002
7805CP
7824CP

In some cases pin for pin substitutes will be supplied

POPULAR SEMI-CONDUCTORS STOCKED

7400
7401
7402
7403
7404
7405
7406
7407
7408
7409
7410
7411
7413
7414
7416
7417
7420
7422
7425
7426
7427
7430
7432
7437
7438
7440
7441
7442
7445
7446
7447
7448
7450
7451
7453
7454
7460
7470
7472
7473
7474
7475
7476
7480
7482
7483
7485
7486
7489
7490
7491
7492
7493
7494
7495
7496
74100
74107
74121
74122
74123
74132
74141
74145
74150
74151
74153
74154
74157
74160
74164
74165
74174
74180
74181
74185
74190
74177
74191
74192
74193
74194
74195
74196
74S00
74S10
74S20
74S74
74S112
74S251
74S258
74S196
82S23
8281A
82S90
74LS00
74LS01
74LS02
74LS03
74LS04
74LS08
74LS09
74LS10
74LS11
74LS13
74LS14
74LS20
74LS21
74LS22
74LS27
74LS28
74LS30
74LS32
74LS37
74LS38
74LS40
74LS42
74LS73
74LS74
74LS75
74LS78
74LS86
74LS90
74LS92
74LS93
74LS95
74LS109
74LS113
74LS114
74LS151
74LS153
74LS157
74LS163
74LS163
75LS164
74LS174
74LS175
74LS181
74LS191
74LS192
74LS193
74LS194
74LS195
74LS196
74LS221
74LS253

SEMICONDS

AC125
AC126
AC127
AC128
AC132
AC187
AC188
AD149
AD161/62
AS322
AT1138 2N301
ASY17
BC107
BC108
BC109
BC177
BC178
BC179
BC182
BC212
BC327
BC337
BC547
BC548
BC549C
BC559
BC639
BC640
BD131
BD132
BD139
BD140
BD237
BD238
BD437
BD438
BF173
BF180
BF194
BF200
BFY50
BFY51
BPX25
BSX19
BU126
MFE131
MJ802
MJ2955
MJ4502
MPF102
MPF103
MPF104
MPF105
MPF106
MPF121
MPF603
TIP31C
TIP32C
TIP120
TIP125
TIP141
TIP2955
TIP3055
TT800 2N4037
TT801
2N301 2N2869
2N706A
2N918
2N2222A
2N2646
2N2869
2N2904A
2N2905
2N3053
2N3054
2N3055
2N3564
2N3565
2N3566
2N3568
2N3569
2N3638
2N3638A
2N3642
2N3643
2N3694
2N3731
2N3819
2N3866
2N4037
2N4249
2N4250
2N4355
2N4356
2N4360
2N5245
2N5457 MPF103
2N5458 MPF104
2N5459 MPF105
2N5485 MPF106
2N5590 MPF603
2N5591
2N6027
2N6084
BA102
OA47
OA90
OA91
5082-2800
40440 2N3731
40637A
40673
40822
40841
BZX61
BZX79
BZX70
BZY93
BZY91
PA40
PB60
MEL12
FCD820

PC BOARD

FIBREGLASS —
4" x 3" S.S.
6" x 4" S.S.
8" x 3" S.S.
6" x 6" S.S.
8" x 6" S.S.
12" x 4" D.S.
12" x 12" D.S.
6M CONVERT
2M CONVERT

DIP SOCKETS

8 PIN
14 PIN
16 PIN
24 PIN
40 PIN

TOROIDS, etc.

IRRESPECTIVE OF MIX

T-12
T-25
T-37
T-50
T-68
T-80
T-94

Free Data on request.

COIL FORMS

NEOSID772/1
5027/6PLB
7100CAN
5200/8PLB
7300CAN
F16 or F29

MISCELLANEOUS

SO239
PL259
BNC Pug
BNC Sockets
7 Seg Displays
Miller Coils . . . Indent
A.R.R.L. See E.T.I.
Publications or write

BOXES

108 x 108 x 50
216 x 108 x 50

INSTRUMENT BOX

160 x 160 x 70
(Black/White)

VALVES

6DQ5
6GK6
12BY7A
OD3
7360
*QQE06-40
*6146
*6146B
*6939
*4-125A
*4-250A
*6JS6

* Indent only.

PUBLICATIONS

Write or Phon for latest list.

Prices for all listed items available on application.

SEND NO MONEY

Where QTHR, simply order by mail or phone and pay on Invoice. No charges. No P/P under 500g (1 lb.).

SHOPS 2 & 3, POST OFFICE ARCADE, 7-10 JOYCE STREET, PENDLE HILL, N.S.W. 2145 — TELEPHONE 636-6222

MAIL: P.O. BOX 33, PENDLE HILL, N.S.W., 2145

Mon. Tues. Wed 9-5 — Thurs. 9-7 — Fri. 9-5 — Sat. 9-12

PLENTY OF PARKING AT REAR

STD 02

SIMPLE QRP UPDATES

Dave Jeanes VK2BSJ,
822 Old Northern Road, Dural, 2158

After finding that I was missing good QSOs by being crystal locked on only two CW frequencies, my interest grew in some form of external VFO. The Radio Officer of a Japanese ship I visited in Darwin had given me a copy of CQ Ham Radio for November 1976. This tome, of 550 pages, had a section on home brew QRP rigs. It was here that I found a suitable circuit for an FET oscillator and buffer amp.

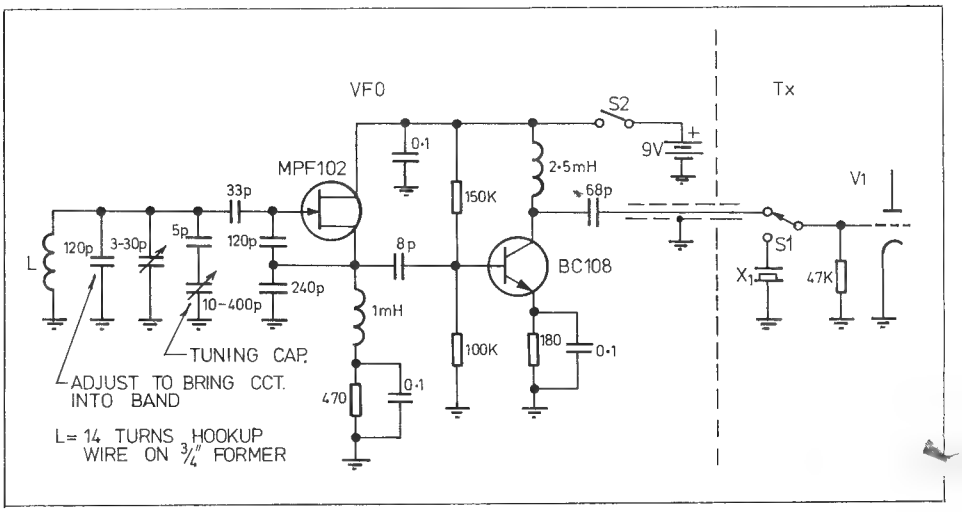


FIG. 1. VFO circuit.

Once again having limited parts on hand on board the Darwin Trader, I resorted to construction using copper clab fibre board and tag strips. This system again proved a simple and quick method of circuit wiring. A ¾ inch diameter plastic pill box was used as a coil former. Fourteen turns of hookup wire was all that I could comfortably wind. Araldite was spread all over the turns to give mechanical stability. A miniature single section broadcast gang was used for tuning capacitor, suitably reduced in value by a small series fixed capacitor. If variation in tuning range is desired the series capacitor can be an air spaced trimmer.

The oscillator circuit is fairly common, and uses a capacitance impedance divider, C5 and C6, to obtain feedback from the output circuit. Increasing the value of C6 reduces feedback. The MPF102 is a good device in this case, its use avoids loading the tuned circuit as would a bipolar transistor. Any input capacitance changes in the FET are swamped by C5 and C6. The original circuit showed an FET buffer following the oscillator, but as I had only bipolars on hand, I used an NPN buffer.

On switch on, no oscillation was apparent. I figured that this might be due to excessive feedback, and added an additional 120 pF across C6 which was originally 120 pF. Immediately I had healthy oscillation and found the signal at about 6.7 MHz on the receiver. Then by juggling the value of C1 and adjusting the trimmer C, I was able to get the circuit working from 7.0 MHz to 7.04 MHz. C1 actually consists in my case of an 82, 33 and 8 pF in parallel. At first opportunity ashore I purchased a miniature plug and socket, two DPDT switches and an Eddystone box measuring 4½ x 3½ x 2 inches. Trimming off surplus fibre board, I mounted the circuit board just off the bottom of the box with spacers. The 9V battery switch S2 and the tuning knob protrude from the front of the box and the output coax with plug from the rear. The transmitter was modified by fitting a switch S1, and the miniature socket. On completion of this wiring, I switched the transmitter on and looked hopefully for adequate drive from the VFO. Transmitter output dropped off by about one third compared with the crystal oscillator, however on air reports show no noticeable signal strength change at the receiving end. Some trace of chirp is apparent on 40 metres but stability is good. Chirp is non-existent on 20 metres. As the main role of this VFO was to QSO stations and then invite them to QSY to my crystal frequency, this role is met with satisfaction. On arriving home on leave, I was keen to use the QRP rig from my 40/20 metre trap dipole. I was not sure whether the simple antenna coupling would feed satisfactorily into the low input impedance of my low in height dipole. I need not have worried. Connecting the antenna lead to the centre conductor of the coax and the transmitter earth to the braid, tune-up was simple and on-air reports gave me excellent signal strengths. However, lack of a transmit/receive changeover relay meant that I was not getting the benefit of the tuned antenna for reception. The circuit, Fig. 2, was incorporated into the transmitter and the VFO/freq. doubler HT switch spare contacts were used to energise the relay and swing the antenna from receive to transmit. The relay is a miniature sealed DPDT unit designed for 28V operation, but works quite well on the 15V developed by the voltage doubler circuit.

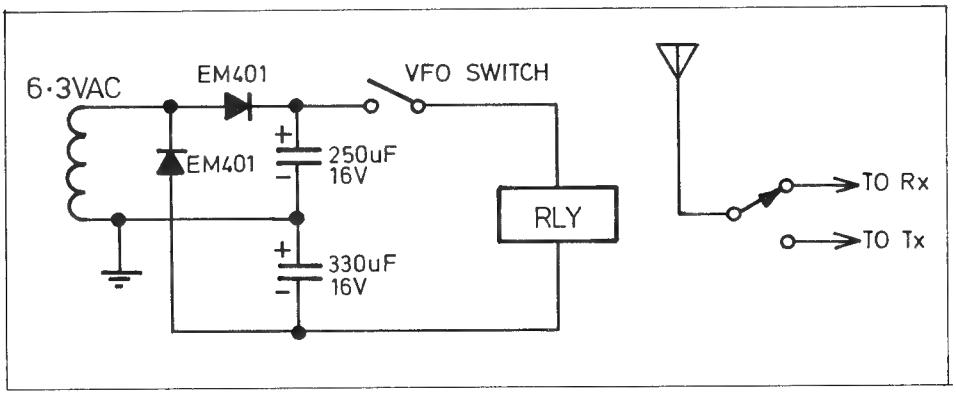


FIG. 2. T/R relay and power supply.

What started as the conversion of a four valve mantel radio into a Colditz type CW transmitter has now turned into a monster, but an enjoyable monster that has given delight in its construction and soothed the innate homebrewer's itch from which we all suffer to some degree.

Footnote: The VFO today (16/3/77) enabled me to zero in on AX2BHH/AM operating from a Qantas Boeing 747 enroute to the South Pole, and steal a QSO from under the noses of the sideband boys, on 40 metres. ■

JOHN MOYLE MEMORIAL FIELD DAY CONTEST

RULES — 1978

Amateur operators and Short Wave Listeners are invited to make this contest, held in the memory of the late John Moyle, a huge success. Contestants may participate either as individuals or as part of a group. There are two divisions in this contest. The first is for 24 hours continuous operation, and the second for any continuous period of 6 hours. Either period must be within the 26 hours available.

CONTEST PERIOD

From 0600 GMT February 11 to 0800 GMT February 12, 1978.

OBJECTS

The operators of portable field stations or mobile stations within the VK and P29 call areas will endeavour to contact other portable, mobile or fixed stations in VK, P29, ZL and foreign call areas on all bands.

RULES

1. In each division there are 8 sections.

(a) Portable field station, transmitting phone.
(b) Portable field station, transmitting CW.
(c) Portable field station, transmitting open.
(d) Portable field station, transmitting phone, multi-operator.
(e) Portable field station, transmitting open, multi-operator.
(f) VHF portable field, or mobile station, transmitting.
(g) "Home" transmitting stations.
(h) Receiving portable and mobile stations.

2. In each division, 24 or 6 hour, the operating period must be continuous.

3. Contestants must operate within the terms of their licence.

4. A portable field station must operate from a power supply which is independent of any permanent installation. The power source must be fully portable; i.e., batteries, motor generators, solar panels, etc.

5. No apparatus may be set up on site more than 24 hours before the contest.

6. All amateur bands may be used, but cross band operation is not permitted.

7. Cross mode is permitted, but note Rule 21.

8. All operators of a multi-operator station must be located within approximately an 800 metre diameter circle.

9. Each multi-op. transmitter should maintain a separate log for each band. A 2 FM rig may be separate from 2 AM or SSB rig, but note Rule 11. A separate QSO number series is required for each band.

10. All multi-op. logs should be submitted under one call sign.

11. Only one multi-op. transmitter may operate on a band at any one time.

12. RS or RST reports should be followed by serial numbers beginning at 001 and increasing by one for each successive contact.

13. **SCORING FOR PORTABLE FIELD STATIONS AND MOBILES.** Portable field stations and mobiles, outside entrant's call area — 15 points. Portable field stations and mobiles within entrant's call area — 10 points. Home stations outside entrant's call area — 5 points. Home stations within entrant's call area — 2 points.

14. **SCORING FOR HOME STATIONS.** Portable field stations and mobiles outside entrant's call area — 15 points. Portable field stations and mobiles within entrant's call area— 10 points.

15. Portable field stations may contact any other portable field station twice on each band and mode (10-160) during the period of the contest provided that at least 4 hours elapse after the previous contact with that station on that band and mode.

1. Stations may be worked repeatedly on 52 MHz and above providing 2 hours have elapsed since the previous contact on that band and mode. Note that FM, AM, SSB and any other voice modes are grouped together as PHONE.

17. Operation via active repeaters or translators is not acceptable for scoring.

YAESU

YAESU - - - a symbol of quality in the ranks of amateur radio

Distributed throughout Australia by Bail Electronic Services — accredited agents since 1963.

Novice, Limited and Full licensee equipment including HF band transceivers from the FT-75B low power set through FT-200, FT-101E, FT-301, FT-301S to the de luxe FT-301D with Dig. Readout. FRG-7 Wadley loop receiver, FR-101/FL-101 TX/RX combination, FL-2100B linear, etc.

VHF equipment includes the FT-221R all-mode 2m transceiver, FT-223 FM transceiver, FT-227 dig. readout synthesised 2m FM transceiver. FTV-650B and 250B transverters, plus accessories and test equipment.

Yaesu and Bail—for quality equipment and friendly, reliable service long after your purchase.

BAIL ELECTRONIC SERVICES

FRED BAIL VK3YS

JIM BAIL VK3ABA

60 Shannon St., Box Hill North, Vic., 3129

Phone: (03) 89-2213

Radio Amateur Equipment from B.E.S. also sold by:—		Phone
W.A.	Radio Communication Services, **H. R. Pride,** 26 Lockhart Street, Como, 6152	450-4379
	Willis Trading Co., 429 Murray St., Perth, 6000	21-7609
S.A.	**Farmers Radio P/L.**, 20 Stanley St., Plympton, 5038	293-2155
TAS.	**G. T. Electronics**, 131 Waverley Rd., Sth. Launceston, 7200	44-4773
	Prins Radio, 123 Argyle Street, Hobart, 7000	34-6912
N.S.W.	Aviation Tooling, **Stephen Kuhl,** 104 Robey Street, Mascot, 2020 (A.H. 371-5445)	667-1650
	Amateur & Novice Comm. Supplies, **W. E. Brodie,** 23 Dalray Street, Seven Hills, 2147	624-2691
	Digitronics, 186 Parry St., Newcastle West, 2302	69-2040
QLD.	**H. C. Barlow**, 92 Charles St., Aitkenvale, Townsville, 4814	79-8179
	Mitchell Radio Co., 59 Albion Rd., Albion, 4010	57-6830
A.C.T.	**Quicktronic**, Jim Bland, Shop 11, Altree Court, Phillip, 2606	81-2824, 82-2864

Sets sold by Bails are checked before despatch, 90-day warranty, spare parts availability, after-sales service.

18. All logs shall be set out under headings of date-time in GMT, band, emission, call sign, RST sent, RST received, and points claimed. List contacts in correct sequence. There must be a front sheet to show — name, address, division, section, call sign, call signs of other operators, location, points claimed, equipment used and power supply. You must also certify that you have operated in accordance with the rules and spirit of the contest.

19. Certificates will be awarded to the highest scorer of each section of the 6 hour and 24 hour divisions. The 6 hour certificates cannot be won by the 24 hour entrants. Additional certificates will be awarded for excellent performance.

20. Entrants in sections a, b, c, d, e and f must state how power for transmitting is derived.

21. All CW-CW contacts count double. Cross mode contacts count single.

22. Entries must be forwarded in time to reach the Contest Manager by 17th March, 1978. The address is — Federal Contest Manager, Box 7, East Melbourne, 3002.

RECEIVING SECTION

This section is open to all short wave listeners in VK and P29 call areas. Rules are as for transmitting stations, but logs do not have to show report and serial number of the second station. Logs must show the call sign of the portable or mobile station heard, the report and serial number sent by that station, and the call sign of the station called. Scoring is as shown in Rule 14 for home stations. A station calling CQ does not count. Portable and mobile stations, which must be listed in the left hand call sign column of your log, alone count for scoring. Stations in the right hand column may be any station contacted. A certificate will be awarded to the highest scorer of each of the 6 and 24 hour divisions, individual or multi-operator entries. Certificates will be issued for excellent performance. ■

ATV NEWS

KEVIN CALLAGHAN VK3ZVJ
PETER COSSINS VK3BFG

ERRATA — October issue: The eighth data bus from each prom should come from pin 9.

This month I have some further news of activity in Lismore, N.S.W.

VK2ZLD and VK2BBR are currently active with the following equipment. Rob VK2BBR uses a PJ4LB exciter with a pair of 2C39 linears, driving a 6 element beam. The video source is a Thorn 1 in. vidicon camera. VK2ZLD uses a home brew all valve transmitter with a 4CX250B final, driving a 48 element phased array. Video equipment includes a Phillips 3 vidicon colour camera and a 1 in. band W vidicon camera. Ancillary equipment includes an Ampex colour VTR, vision switcher and effects generator, phase equaliser, techtronix wave form monitor and two colour monitors.

Some linking is performed on 6 GHz although I am not aware of the purpose of this translation. I hope that either of the two Lismore boys may be able to provide more information and photographs for AR in the future.

Back in the Melbourne scene, Ron Harrison VK3AHJ has written to the BATC regarding the number of transmitting stations here in the south. We suspect the density is higher than anywhere else in the southern hemisphere and may be comparable on a world-wide basis. More news on this when Ron gets an answer from the UK.

Included in this issue is a rather novel video modulator designed by Ian VK3ALZ (Fig. 1, 2). It uses three pairs of differential amplifiers for improved signal to noise and is suitable for cathode modulating a 3/20 or 6/40.

The video signal is AC coupled to the first differential pair where it is clamped and direct coupled to the remaining amplifier.

A novel RF decoupling system uses a quarter wave open circuit co-axial stub (mount as close to the cathode as possible) and a small RFC for additional protection. The heaters of the 6/40 should be bypassed for UHF RF.

The output transistors Q5, Q6 and Q7 should be mounted on a heatsink. Although poorly located in Ian's direction I was able to take a copy of this circuit off-air from a strength 2 picture. ■

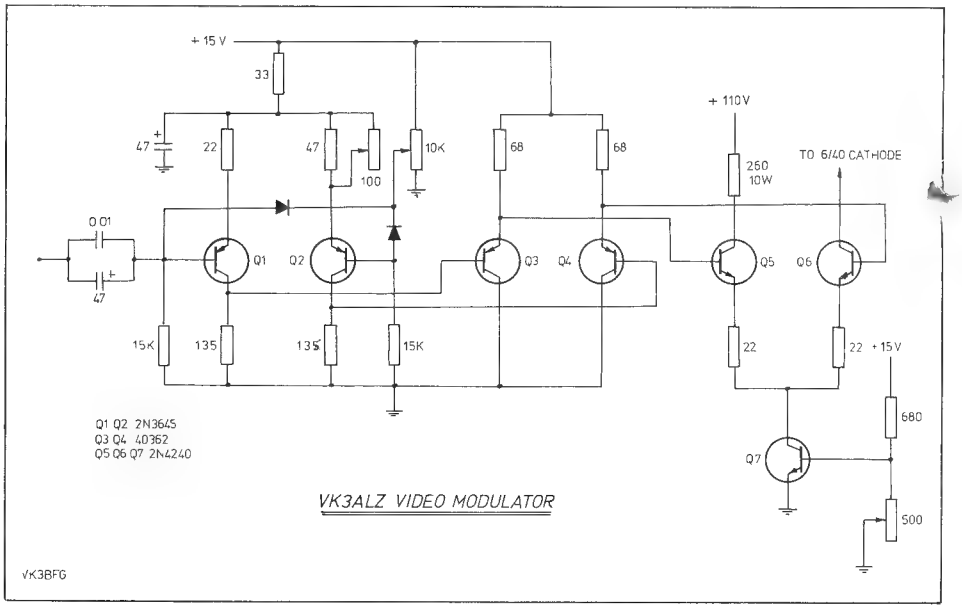


FIG. 1.

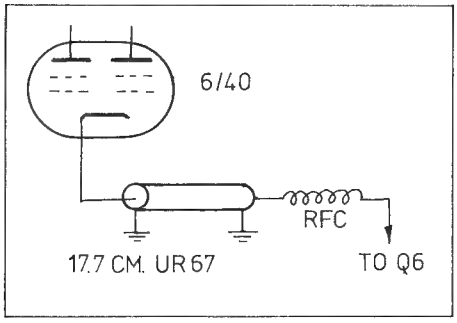


FIG. 2.

A MONKEY'S VIEWPOINT

Three monkeys sat on a coconut tree
Discussing things as they're said to be;
Said one to the other — "Now listen, you two —
There's a certain rumour that can't be true:
That man descended from our noble race,
Why! The very idea! It's a dire disgrace.

No monkey ever deserted his wife —
Starved her baby — or ruined her life.

And you've never known a mother monk
To leave her young with others to bunk —
Till they scarcely knew their mother,
And another thing you'll never see —
A monk build a fence round a coconut tree,
And let the coconuts go to waste,
Forbidding all other monks a taste.

Why, if I built a fence around this tree —
Starvation would force you to steal from me.

Here's a thing another monk won't do —
Go out at night and get on a stew.

Or use a gun, or a club, or a knife
To take some other monkey's life.

Yes, man descended, the ornery cuss,
But brother — he didn't descend from us!"

Anon. ■

VHF-UHF AN EXPANDING WORLD

Eric Jamieson, VK5LP
Forreston. 5233

AMATEUR BAND BEACONS

VK0	**VK0MA, Mawson**	**53.100**
VK1	**VK1RTA, Canberra**	**144.475**
VK2	**VK2WI, Sydney**	**52.450**
	VK2WI, Sydney	**144.010**
	VK2RHR, Mittagong	**144.120**
VK3	**VK3RTG, Vermont**	**144.700**
VK4	**VK4RTT, Mt. Mowbullan**	**144 400**
	VK4RBB, Brisbane	**432.400**
VK5	**VK5VF, Mt. Lofty**	**53.000**
	VK5VF, Mt. Lofty	**144.800**
VK6	**VK6RTV, Perth**	**52.300**
	VK6RTU, Kalgoorlie	**52.350**
	VK6RTW, Albany	**52.950**
	VK6RTW, Albany	**144.500**
	VK6RTV, Perth	**145.000**
VK7	**VK7RNT, Launceston**	**52.400**
	VK7RTX, Lonah	**144.900**
	VK7RTW, Lonah	**432.475**
VK8	**VK8VF, Darwin**	**52.200**
JA	**JA2IGY, Nagoya ***	**52 500**
KG6	**KG6JDX, Guam**	**50.110**
KH6	**KH6EQI, Hawaii**	**50.104**
ZL1	**ZL1VHF, Auckland**	**145.100**
	ZL1VHW, Waikato	**145.150**
ZL2	**ZL2MHF, Upper Hutt**	**28.170**
	ZL2VHP, Palmerston North	**52.250**
	ZL2VHF, Wellington	**145.200**
	ZL2VHP, Palmerston North	**145.250**
	ZL2VHP, Palmerston North	**433 250**
ZL3	**ZL3VHF, Christchurch**	**145.300**
ZL4	**ZL4VHF, Dunedin**	**145.400**

* Note: the location of the beacon has been amended from Japan as shown previously to Nagoya, being the city nearest to Mt. Asama from where the beacon operates. The output power is 10 watts, ground plane antenna and ident "V V V DE JA2IGY". This news came to me from Graham VK8ZCJ who in turn received it from JA2TTO by letter, who is editor of the 6 metre column in the monthly magazine "The Mobile Ham". Kunihiro uses Yaesu equipment and runs about 100 watts input into a 7 element yagi 17m high.

Graham also enclosed a copy of another letter from Japan, this time from Kikuo JH1USR from Tokyo, who works for an electric company and operates on 6 metres with CW and SSB, and can run either 80 or 150 watts to a 6 element yagi 20m high. Kikuo adds a list of stations he has either heard or worked as the case may be between 2-4-77 and 26-977 and totals 236 stations outside of Japan, comprising 26 different call areas in 12 countries, which included openings to W on 4-6, 11-6, 12-6, 26-6 and 11-7. It seems we are living in the wrong place on the globe, although I am certain we miss many a contact of this type due to being 2 MHz removed from the main centre of the world activity on six metres!

Another letter arrived from Graham VK8ZCJ at the end of October which outlined a further opening to Japan on six metres on 27-10 when on walking into the shack at 1050Z Graham noted a number of JA stations calling CQ on 52 050. He worked JA1, JA2, JA4, JA7, JH1, JH4, JH6, JE1, JE2, JI1, JR1 and JR2, not bad for 84 minutes work! Signals were not as strong as usual, peaking to S7 at times. JA7MIT is mentioned because it is apparently rare for JA7 to be heard in Darwin, the last about 6 or 7 years ago.

Graham continues: "The last contact was with JH4YJI, after which there was a dogpile on George P29HV on 52.003. No other areas were heard.

"At about 1230Z I switched to two metres to check, nothing heard up to 144.2 then "Bang" FM signals starting at about 144.3 and continuing up to 145 at least. I quickly retuned to 144.1 and called CQ but no reply. Still no signals to 144.2. I went up to 144.34 and sat right on top of a strong FM station and called CQ, but again no response. At this stage I realised tuneable FM was required which I don't have — I called Brian VK8VV but he wasn't home.

"On coming back into the shack with the XYL signals were still there but not as strong, but there was a CW station on 144.090, called him, no reply. On 144.140 heard a station on SSB (the first and only one) calling CQ in Japanese, I believe the call was JE2EQN. I called but no reply, then the band went quiet.

"I called CQ on Ch. 50 FM and Doug VK8JD answered and came to the shack at about 1255Z in time to verify a weak FM station with TEP flutter on 144.34 approx. Called again, no reply. Six metres was very quiet when I went back to rustle up some activity, and it appeared the 2 metre opening was in longer than the 6 metre opening. Only 2 strengths were peaking to S7 on FM. The CW and SSB were about S1.

"The 49.75 TV was solid with birdies to 50.2 but not as strong as I have heard it on occasions. The 49.305 FM station was audible but 53.75 from Malaysia did'nt appear. No KG6, DU or P29 signals heard on six metres.

"Some observations: (1) I believe the FM signals, because of their number and constant strength between stations, were only running about 10 watts to non-directional antennae. At least 30 to 40 stations were heard. (2) I believe the CW and SSB stations were using beams that weren't pointed at Darwin. (3) I believe Brian VK8VV could have broken into the JA FM stations had he been on the air. (4) My receiving set up is not fancy — homebrew 10 element yagi fed with 60 feet of UR67 to a FTV250 with an Ipswich Radio Club 3N210 preamp. My 60/40 linear is not set up for 10 watts input so it's not in use. My output power is about 20 watts PEP only so that might explain why I got no replies. The antenna is only 6 feet above the roof approx., about 24 feet above ground.

"It's all very exciting, and the frustration and disappointment of not being able to make it was extreme. It was fantastic to be within a hairs breadth of a world record. I really thought I had it for a moment when the JE2 called CQ on SSB. Such is life!

"I am certain within 12 months the world terrestrial record for two metres will be held by a Darwin station. The distance from Darwin to Tokyo is 3370 miles, and to Fukuoka 3170 miles, so the JE2 signal would have been about 3250 miles!"

Thank you, Graham, for first telephoning the information to me at the time of the happening, and later putting it in writing. Your account of this 144 MHz opening between Darwin and Japan will certainly stir up interest all across the top of Australia, and probably other Pacific areas too. Good luck to you, I hope you are the first to make it over such a long path, as you are certainly helping to keep VHF very much alive in Australia's north, which in turn keeps other countries looking for us, with the chance the signals may one day penetrate further south. At least this time we do have compatibility of frequency coverage instead of being removed by 2 MHz as on 6 metres.

I note in the letter from Yoshiteru JA2BZY there are many stations working on 2 metres in Japan, but haven't given much thought to the possibility of 2 metre DX across the water. Possibly now when news of the opening to Darwin gets around, some of the better stations will be looking to the south.

Graham also forwards a copy of a letter from Hiro JA1LZK which is of interest to us. He writes: "Happy to know the 2 metre band opened on 27th October. I believe there are many possibilities for JAs to work VKs on 2 metres. I am now equipped for 2m SSB, with 10 watts and a 7 element beam. I think this is not enough, so will soon have 100 watts and two stacked 11 elements.

"In Japan there are many stations working FM and SSB, it is the most popular band for VHF, but mainly FM. The band is allocated between 144 and 146 MHz. SSB can be used above 144.1 MHz. Most JA SSB stations concentrate between 144.1 and 144.4 MHz. So your 144.1 calling frequency will be useful for both ends.

"The possibility of 144 MHz TEP have been long considered in Japan, and your report from Darwin makes our idea sure. We are going to run our beacon on 2 metres soon". So that looks like confirmation that the other end of the operation has now been activated.

Tony VK6BV writes from Kalgoorlie to advise there is to be 144 and 432 MHz activity from there this year. Both Lewis VK6ZGQ and himself will be active on these bands. On 432 they both run Microwave modules to 13 element yagis. Both are also active on six metres.

Tony also mentions he agrees with the formation of an HF net for VHF consultations. He also wholeheartedly agrees with my thoughts on extending the six metre band coverage, so that's another one.

For those of you who might be interested in obtaining a SMIRK Certificate which gives membership to the Six Metre International Radio Klub (SMIRK) 6-6 Net, the following are the qualifications: For Australian Stations, applicants must verify two-way contact by any normal mode of emission with net members on six metres only, three being required. Provide a listing to the Secretary, Ray Clarke, K5ZMS, 7158 Stone Fence Drive, San Antonio, Texas 78227, USA, of dates, time, call sign (yours and member station worked), and 6-6 number of SMIRK member worked, accompanied by the $2.00 one-time membership fee. A certificate will be issued with your SMIRK 6-6 number on it, after verification of the information received.

The above is included again because with the overall increase in six metre activity across the equator etc. there soon will be operators becoming eligible for the award. Peter VK6ZDY is one member I know.

Still on letters received, we now shift the scene to Guam by hearing from Mac KG6APP who advises he has been on Guam since July 1965, and active in amateur radio since 1968, and since 1970 on 6 metres. From his letter "I have heard VK8VF on 6 metres several times but have never been able to have a VK QSO. Finally I did get a contact with VK8ZCJ on 11-10-77. During that QSO I was surprised to hear that KG6APP had worked another VK station and KH6IAA. Well, quite frankly, it would delight me if true. My six metre operation was out of service from 1976 until September 1977. I bear no animosity, just want the right person to get credit for the first QSO.

"Locally, we have worked a number of countries with low power and irregular listening schedules. I have worked HL9WI, KX6HK, Nauru, KC6PO (Japanese DXpedition to Ponape), VK8ZCJ, as well as a few hundred JA stations all on 6 metres. Some have also worked KH6, DU and VS6. Most of us use the FTV 650 transverter, and monitor 6 metres almost every day during expected hours". Nice to hear from you Mac and for setting the record straight.

Gareth VK2ANF writes supporting the move to get more of six metres, and his letter will be filed away in my growing list. He also mentions having some fantastic contacts into VK5 and VK3 on 6 metres using an IC502 fed into a mobile 2 metre 5/8 whip! He is currently only on two metres FM with a new IC215. Well Gareth, at least you are on VHF and that's something, we hope to hear you again on six metres one day. Thanks for writing anyway.

Wayne VK6AM writes to support expansion of the six metre allocation, particularly the 50.0 to 50.5 segment on a non-interference basis as compensation for the loss of 27 MHz. He also supports the idea of an HF net, suggests 80 metres at night and 10 metres daytime. He also reports VHF activity in Busselton, 250 km south of Perth is picking up a little with both VK6ZAU and himself active on 6 and 2 metres. Take off from Busselton is good to the north and north west and over water, but the east has a clear run to a range of hills 12 km away. He is keenly waiting for a 2 metre SSB opening. Good luck, thanks for writing Wayne.

Geoff VK3AMK writes to advise the current 6 metre "season" on 6-11 to VK4 and VK2. Signals weak. The same day he worked JA2BZY, JA1VOK and JA1WPH, all weak and unstable. On 7-11 again open to VK4 plus worked JA2BZY, JE1HYR, and heard JR3KRK, signals not good. Also reported ZL1TJ and ZL1QI worked into VK6 and to VK4RO on 6-11. Thanks, Geoff.

Hooray! At last a letter from a VK5 station indicating support for expansion of six metres. Pleased to hear from you, Col VK5DX in Mt. Gambier, at least you apparently care! He also supports the idea of an HF net, possibly 80 metres, and certainly is in favour of establishing some memorial to Ron VK3AKC. Thanks, Col.

Mike VK3ASQ is the next letter, and fully supports the 6 metre expansion idea, and sets out quite a few ideas which will be filed for the moment. His considerable testing for TVI makes interesting reading and shows how some people experiment to prove a point or two. It also is interesting to note Channel 0 in Melbourne suffers

QRM from several sources, SEC, co-channel, and CB radio!

Mike adds support for the HF net as well. Included is a list of VHF SSB operators in Geelong comprising 12 call signs, most of whom operate on both 6 and 2 metres, and three on 432 MHz. He mentions how pleased he is to see Arch VK3BW back on 6 metres again. Arch was one of the original 6 metre operators after the War until the change from 50 to 52 MHz when he gave it away. He has now been coaxed back and operates on AM mainly on Saturdays and Sundays, but has worked a lot of DX and with no TVI.

Mike expects to be operational again this year from Mount Cowley in SW Victoria over the Christmas-New Year period, this being his sixth year in a row. They will be taking a Honda 1500W alternator, Toyota van, FT221 and FT620B and linears to give 400 watts PEP on both 6 and 2 metres, 20 element phased array on 2, 5 el. yagi on 6, plus 10 watts PEP on 432 MHz. Good luck with the expedition, Mike.

Frank VK4FU has written from Rockhampton and also supports the six metre expansion and whilst writing has passed on the following: "I now have full coverage 144 to 148 MHz SSB with 6/40 final feeding 10 over 10 yagis horizontally polarised at 30 feet, and have been carrying out skeds with Harry VK4LE at Springsure and Gordon VK4ZBE at Rubyvale. We are having a good deal of success, particularly around 0630 local. Path is approx. 170 miles. Harry and Gordon both used stacked 5 over 5 yagis. I can hear the Mt. Mowbullan beacon on 144.4 most mornings but this circuit is very dependent on sustenance layers between 10-20K feet".

Thank you, Frank, we are pleased to know we have another keen 2 metre operator in Queensland, together with Harry and Gordon.

Steve VK3OT sends along some notes, mentioning working 9 stations from 0552 on 11-10, and noting many Russian stations on 10 metres at the time. On 13-10 at 0301Z hearing perfectly sent CW signal on 50.035, S1 to S2. Contacted Geoff VK3AMK and together tried to decipher signal, which peaked at about 45 degrees from Hamilton.

VK9JD is now VK9NI with an FTV650 and a 5 el. yagi. YJ8KM is on 6 metres again (yes, I worked him on 22-11 . . . 5LP) obtain your QSL via Steve VK3OT, PO Box 414, Hamilton, Vic. 3300. C21KM/MM has 6 metres on board, and the Kermadec Islands DXpedition will not be taking 6 metres!

Steve mentions Albert VK2ZFB caused a stir when he claimed the first Zone 29 Award from VK6 Division! Requirements: 25 contacts with Zone 29 stations, i.e. VK6, VK8 and VK9 plus Christmas and Cocos Is. Send to Secretary, Neil Penfold, VK6NE with SASE and $1.00.

Steve at last has received his QSL card from 3D2AZ after three years. Eugene is ex-VK2ZSZ and uses FT101 into HB transverter plus after-burner to 5 el. yagi on 6 metres. He also operates Oscar 7 using a solid state transverter and linear into a quad. The 3D3 beacon is still not operational, and has been taken over by the University of South Pacific who are constructing a new antenna. The local population were complaining the beacon caused TVI from the Australian and New Zealand TV DX stations they were trying to receive, someone worked the turnstile antenna and put it off the air! New antenna is to be on top of the Uni. building and omni-directional gain type.

Finally, Steve lends his support to expansion of 6 metres. He also has generously offered $100 towards a fund for a State of the Art Contest as a memorial to Ron VK3AKC. Many thanks, Steve, for your offer.

Gordon VK4ZBI writes from Rubyvale supporting the 6 metre expansion, and mentions he first worked 6 metre DX back in 1958, when he worked several hundred JA stations and collected VHFCC No. 18.

Gordon left amateur radio in 1961 and returned earlier this year to be active on 2 metres using an IC202 and 6 watt linear. For his present 6 metre activity he transverts from the IC202 to 52 MHz! That might be considered doing it the hard way Gordon, but at least you are on! Gordon's nearest amateur neighbour is VK4LE at Springsure, 85 miles away to the SE and they keep morning skeds on 144.1 SSB at 0615 local time, with signals mostly Q5 and variable between S0 and S9. He has also worked VK4FU in Rockhampton. Thanks for writing, Gordon.

Daniel VK7DA phoned me to say the VK7 boys had a ball on 14-11 with an opening to Japan on 6 metres. All districts JA0 to 9 (except 8) were worked. Daniel worked 37 stations, Joe VK7JG 31, John VK7JV 6. Signals mostly were S4 to 5 with occasional signals up to S9. It is understood Ian VK7ZIF in Hobart also worked some. Daniel heard the beacons on 50.104 and 50.110 between 0400 and 0800Z, otherwise nothing. Apparently the band also opened on 13-11 0500 to 0535Z with John VK7JV working 8 JAs. JAs were also heard working ZLs. Thanks, Daniel.

John VK7JV also phoned re the JA openings, and he also added Kevin VK7ZAH amongst those making contacts. Kevin and Joe VK7JG apparently have started their six metre season well by working ZL3QK too!

Pleased also to get a short letter from Martin VK4ZIL who supports the 6 metre expansion plan. He points out he has a 60 dB hill to the south of him which rather spoils his take-off, and also attenuates TV signals from Brisbane sufficiently so that 6 metre working is a real problem there. Well, at last I have found someone with a hill of greater attenuation than mine to the west of me, which I claim as my 30 dB hill! So perhaps I am not so badly off after all . . . 5LP.

That seems to be the end of the letters, quite a mailbag this time, but the notes for the December issue closed over a week earlier than the usual closing date, so there were some carried over. They are also closing 5 days earlier this time, so there may be another carry-over.

By the time you read this the better part of the summer DX "season" will have passed, but I remind those who were able to take part in the Field Day operation to send in the copies of your logs by 31-1-78, see November AR for details. And talking of logs, what about sending in some logs for the Ross Hull Contest. Very few people take the trouble to enter for the Contest, but many stations are on the air. I am quite sure we would all have less VHF contacts in any one season if the Ross Hull was not running, so let's try and keep it going by showing a bit more interest. I know a lot of people are not happy about the new rules last year, and I'm not either, that's why I suggested the rules for the Field Day Contest should be patterned along the rules of the previous Ross Hull Contests. If you are not happy why not send in a log to the Contest Manager, and set out on paper why you don't like the rules, and what your suggestions would be for improvement. If we can hit the Contest Manager with a whole heap of complaints then we might get somewhere, but on the air complaints won't get many changes. Get to it and write down your ideas, and send them in with a Ross Hull log in January.

I suppose I had better end now, I seem to have been typing for a long time. Thought for the month: Computers spare men from making a lot of unnecessary conjectures. So do bikinis!

Happy New Year.

The Voice in the Hills ■

QSP

THE WHERE AND WHEN OF RTTY IN VK6

Information from G. Hufner VK6IQ.

VHF — 2m 146.600 MHz:
Sunday 10.30 a.m. WAST.
Monday 8.00 p.m. WAST.
Thursday 8.00 p.m. WAST.

HF — 80m 3585 kHz:
Sunday 10.30 a.m. WAST.
Thursday 8.00 p.m. WAST.

HF — 40m 7030 kHz:
Sunday, after WIA news broadcast.

Stations can also be heard on 146.600 at various times during the evening and at week-ends.

For those interested in VHF DX the WIA band plan call for following:—
6m operation between 52.050 and 52.100, calling frequency 52.075.
2m operation between 144.050 to 144.100, calling frequency 144.075.

N.B.: Calling frequencies should be used for calling only — once contact has been established it is desirable to QSY away from the calling frequency. ■

MAGPUBS

A SERVICE FOR WIA MEMBERS

☆

— **OVERSEAS MAGAZINE subscriptions** (Rates subject to change — copies mailed direct to you from overseas suppliers) —

$A	1 yr	2 yrs	3 yrs
QST	13.90	27.80	41.70
Ham Radio	12.00	—	30.50
Radio Communications*	12.30	—	—
CQ	8.00	13.80	—
Break-In	8.00	—	—
CQ-TV*	4.50	—	—
VHF Communications	6.00	(airmail $8.00)	

*New subscribers please ask for RSGB or CQ-TV membership from beforehand.

(Overseas magazines subs only available direct from Magpubs, not Divisions).

— **BACK ISSUES** of VHF Communications are normally available from stock (see separate advertisement) but not of other overseas magazines.

— **BACK ISSUES OF AMATEUR RADIO** are normally available from stock.

— **AMATEUR RADIO** is available to overseas subscribers and to Australian libraries, schools, Government Departments and the like at $10.80 per annum surface mail post paid.

— **OTHER ITEMS** normally available from stock:

— Membership badges
— Ties
— ITU Std. Morse Cassettes
— Great Circle Map (Project Australis — Melbourne centre)
— Log books
— Call boosk
— Reference publications.

☆

SEND NOW FOR LISTS TO:

WIA

P.O. BOX 150, TOORAK, VIC. 3142

OR ASK YOUR DIVISION

INDEX TO AMATEUR RADIO — VOLUME 45

JANUARY — DECEMBER 1977

ANTENNAE

	Page
Antenna Coupling Unit for the Experimenter	Jan 8
Simplified Method of Antenna Trap Construction	Mar 11
Shortened Forty Metre Dipole	May 9
The 14AVQ on 80 and 160 Mx	May 10
Effect of Ground on Directional Pattern of a 14 MHz Antenna	June 7
Weatherproof 2 Metre Ground Plane	July 7
Antenna Measurements	Aug 10
Your Beam: Will it Stay Up?	Oct 15

RECEIVERS

Modifications to the VK3ZIM Converter	July 27
Modifications to the Yaesu FRG7	Dec 22
Modification to the Tuning Rate of the FRG-7	Dec 22
Upgrading the Barlow Wadley XCR-30	Dec 26
160 Metres for the Realistic AX-190 Mk II Receiver	Dec 20

TRANSMITTERS AND TRANSCEIVERS

Improving Power Output of the IC-22	May 6
Modifications to the Yaesu FT200 Transceiver	Aug 20
Operators Eye-View of the HW7 and QRP Operation	Aug 23
Improved 45 Watt 2 Metre Booster Amp. for FM and SSB	Sept 10
20 Watt Linear Amplifier for the IC202 (Photo)	Oct 18 / Nov 30
Filament Switching from a Distance	Nov 16
A Two-Tone Oscillator for SSB Tests	Dec 39
Simple QRP	Dec 50

TECHNICAL

Audio Staircase Generator Mod	Feb 14
Burglar Proof Your Shack	Mar 8
Transitions in Coaxial Lines	Apr 20
Transitions in Coaxial Lines	June 6
Audio Phase Shift Network for Solid State Phasing SSB	June 10
Simplified Audio Filtering	June 12
Wideband Quadrature RF Phase-Shift Networks	July 9
A Simple, High Current Regulator Power Supply	Nov 12
Digital Logic Circuits in Communication	Nov 6
Trap Those Coloured Tennessee Valley Indians	Dec 27
Christmas Tree Lamps Project	Dec 28
The Jiggler Dangler	Dec 29

GENERAL

All Japan Hamvention	Jan 4
Chess via Amateur Radio	Jan 19
Chess via Amateur Radio	May 24
WICEN in Action	Jan 21
AR Awards — 1976	Feb 25
New Novice Operator	Feb 16
Technical Tips — CB Style	Feb 16
Dx to Dx	Mar 7
S.A. Microprocessor Group	Mar 32
Some Field Station	Mar 13
WIA Education	Mar 5
ATV-Dx	Apr 13
CB — "Wall to Wall and Tree Top Tall"	Apr 17
Novice Licence Syllabus	Apr 24
Amateur Exam — February 1977	June 23
1977 Federal Convention Report	July 21
Queensland Amateur Radio Licence Study Package	July 11
How to Win RD and/or Similar Contests	Aug 26
Rua Hama	Aug 17
The Man Behind the Microphone	Aug 9
Victorian Novice Amateur Exam — 1977	Aug 6
1976 Total Solar Eclipse	Aug 20
A Dx-er's Boast	Sept 15
Recognition for JA Operator	Sept 17
AX4HRH on Air	Oct 14
Summerland Radio Club Aids Handicapped Children	Oct 19
CQ Aeronautical Mobile	Nov 9
Darwin Amateur Radio Club — Post Tracy Progress	Nov 17
Amateur Radio Achievement Award	Dec 8
Amateur Radio and the Community	Dec 8
Time	Dec 9
What Exactly is Electricity?	Dec 9
Something About Radio Amateurs	Dec 14
Amateur Abbreviations	Dec 15
Box Hill Technical College Display	Dec 16
DX and the Novice	Dec 17
What Some of Sydney's Novices are Getting Up To!	Dec 18
Interference	Dec 21
Understanding Morse "Language"	Dec 30
Facets of Amateur Radio — A Pictorial Round-Up	Dec 40
Historicals	Dec 44
High Speed Morse	Dec 45
Edison and his Contributions to Wireless	Dec 55
Principal Amateur Band Allocations	Dec 58
at Eastland	Dec 59
Radio Amateurs Old-Timers Club	

COMMERCIAL KINKS

FT101E Hum	Jan 20
An SSB Filter for the Yaesu FRG-7 Receiver	Mar 21
The Ham II Rotator	May 18
The SBE34 Transceiver	May 18
The TS520 Transceiver	May 18
The IC-21A	June 18
The FRG-7	June 18

NEWCOMERS NOTEBOOK

A Tuning Unit for Random Length Wire Antennas	Jan 20
Suppression of Electrical Noise caused by Vehicle Electrical Systems	Feb 10
An Amateur Radio Transmission Timer	Mar 23

TRY THIS

The 14AVQ on 80 and 160 metres	May 10
How to Raise that Mast	June 22
Antenna Balun	Aug 17
Some PCB Etching Tips	Sept 19
Transistor Tester	Nov 8
Modification to the TE-15 Transistor Dip Oscillator	Nov 13
1296 MHz SSB	Nov 17
The Gentle (?) Art of Crystal Grinding	Nov 20
Interference in Colour Television Sets	Nov 20
Outlet Plug for Low Voltage Power Supplies	Nov 20
An HF TVI Suppression Technique	Dec 27

PRODUCT REVIEWS

Review of the Kenwood TS-700A 2 Mx All Mode Txcvr	Mar 16
Review of the Multi 2700 Transceiver	Sept 18

BOOK REVIEWS

Solid State Design for the Radio Amateur	Nov 29
Radio Servicing Pocket Book	Oct 23
Radio Communication Handbook — Fifth Edition	Oct 23
Practical Electronic Project Building	Mar 13
Printed Circuit Assembly	Mar 13

CONTESTS: RULES, RESULTS, AWARDS

John Moyle National Field Day Contest Rules — 1977	Jan 18
Commonwealth Contest — 1977	Feb 19
VK-ZL Dx Contest — Results for 1976	Mar 20
NZART Jubilee VK/ZL/Oceania Contest 1976 — Results	May 20
John Moyle Memorial National Field Day Results — 1977	June 27
Oldtimer wins Ross Hull	June 25
Ross Hull VHF/UHF Memorial Contest 76/77 Results	June 25
Remembrance Day Contest — 1977, Rules	July 28
VK/ZL Oceania Dx Contest 1977 — Rules	Sept 25

SPECIAL TECHNIQUES

Radio Teletype —	
Part 1	Jan 7
Part 2	Feb 6
Part 3	Mar 12
Part 4	Apr 14
Part 5	May 11
Part 6	June 14
Part 7	July 13
Part 8	Aug 17
Why Radio Frequency Clipping?	Feb 8
May 1976 WA6LET Tests	Apr 22
RTTY Line Generator	Apr 5
Solid State Video Modulation System	July 6
Finding Oscar with your Pocket Calculator	Aug 16
Guidelines on the Teaching of Morse	Sept 14
Morse to ASCII Converter	Oct 6
ATV Callsign Generator	Oct 27
Low Cost Vidicon Amplifier	Sept 6
Low Cost Vidicon Amplifier, Aftherthoughts	Nov 30
RTTY Reception on the FT101	Nov 8

REPEATERS

2 Metre Locations and Channel Numbers	Jan 12
The Mt. Ginini Repeater	May 15

CB

WIA Correspondence	Apr 3
Citizens Band Frequency Allocations	Aug 9
The "CB Report"	May 3
Stop Press Correspondence	Aug 6
WIA Position Paper	June 5
"VK"-"CB" Weekend Seminar	Sept 15

QSP

VICTORIAN DIVISION COMPONENTS

The component trading of the Victorian Division has now ceased and all existing stock is being cleared.

Many orders were not sent out between July 1977 and October 1977 by the then components officer. These orders have been processed. However some orders may have been lost.

If you have not received your order you should contact the Victorian Division immediately giving full details so that action can be taken.

During the past years many credit notes were issued. Those that are still current should be sent immediately to the Victorian Division. They will be refunded.

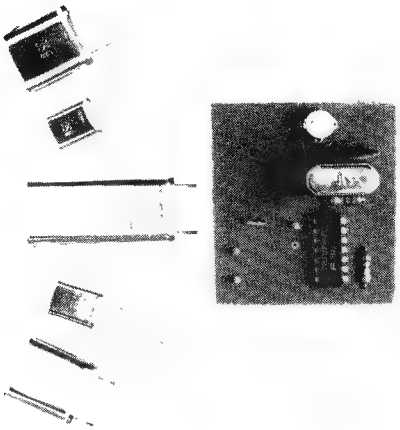
The Victorian Division regrets the inconvenience caused to their former customers for components.

TO COMPLEMENT OUR USUAL RANGE OF CRYSTALS

BRIGHT STAR CRYSTALS PTY. LTD.

35 EILEEN ROAD, CLAYTON, VIC., 3168. Phone: 546-5076 (Area Code 03)

CAN SUPPLY A RANGE OF —



- OSCILLATORS
- WIDE-BAND AMPLIFIERS
- TTL & CMOS DECADE COUNTERS
- ELECTRONIC CRYSTAL OVENS

INTERSTATE AGENTS:

Adelaide: ROGERS ELECTRONICS — Phone 42 6666
Brisbane: FRED HOE & SONS PTY. LTD - Phone 47 4311
Perth: COMMUNICATION SYSTEMS — Phone 76 2566
Hobart: DILMOND INSTRUMENTS — Phone 47 9077

All Mail to be addressed to: P.O. BOX 42, SPRINGVALE, 3171

AMATEUR RADIO BOOK.
EDITOR/WRITER.

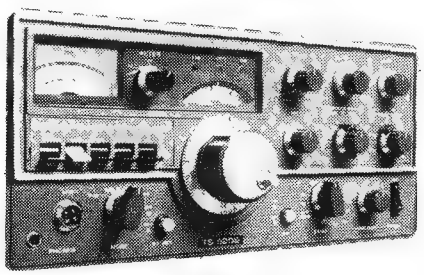
Dick Smith is planning to produce a complete Australian book on amateur radio. This book will be similar in style to his book on CB radio. An editor/writer is required. The person should have a good knowledge in all facits of amateur radio and preferably be an experienced and active amateur as well as having some writing experience. An attractive remuneration will be available to the successful applicant.

Please apply in writing to;

Mr. Dick Smith.
Dick Smith Electronics.
P.O. Box 747,
Crows Nest.
N.S.W. 2065.

ANDREWS COMMUNICATIONS SYSTEMS (02) 349 5792

SHOP 7, GARDEN STREET, MAROUBRA JUNCTION, N.S.W. (nr. Maroubra Road)
P.O. BOX 33, KENSINGTON 2033 — AUTHORISED KENWOOD DISTRIBUTOR



KENWOOD TS520S
SSB TRANSCEIVER
Digital readout optional

KENWOOD TS820S
SSB TRANSCEIVER
Digital readout standard

KENWOOD TL-922
LINEAR AMPLIFIER
(expected January)

Also
COAX CABLE
PLUGS & ADAPTORS
SOLID STATE AMPS.
POWER SUPPLIES
ROTATORS etc.

C.A.R.E.

(Community Amateur Radio Events)

AMATEUR RADIO TO HELP AT SCENE OF SEMI-TRAILER CRASH — STUART HIGHWAY, SOUTH AUSTRALIA

Soon after lunch, 1.15 p.m. central time on Wednesday, 13th July, a few kilometres south of Marla Bore on a badly corrugated section of the notorious Stuart Highway, we came across a horrifying sight. It was a semi-trailer and prime mover straddling the road between the red sandy banks and spread around in bizarre attitudes were three smashed cars. How many people were injured and how many were killed, were the first questions which came to our minds. Ron, the driver of the semi, had only moments earlier crawled out of the smashed rear window of his prime mover. First on the scene a few minutes ahead of us was a party of surveyors working near the crash site. They allayed our fears that no-one had been injured or killed and that the cars were originally on the semi, bound for Alice Springs.

Ron was obviously in shock — who wouldn't be? But, apart from a sore back he said he was OK. He was the owner-driver of the $50K combination, was still paying it off, and was uninsured because his insurance company would not cover him on the Stuart Highway. Two other second-hand cars and a brand new Land Rover were mangled up on the lower deck of the trailer. A few minutes earlier he had stopped to check that his tyres and fuel tanks were in order before continuing the journey. Without warning his RHS oil tank of 100 gallons had crystallised its mountings and fell under the rear wheels, then jammed under the trailer thereby skewing the outfit onto its side and into the right hand side sandbank.

Marla Bore is 165 km from the Northern Territory border plus another 300 km to Alice Springs. To the south, Coober Pedy is 300 km away. Well, what to do? Best let the Police know — how else — but through the RFDS. First up, the surveyors tried their mobile unit on Port Augusta RFDS, the only frequency that they had — no joy, either poor propagation or just not on watch!

Months ago before starting our "Round Australia" journey I had checked the RFDS frequencies for all bases that we would be touching and had checked which frequencies the Somerkamp TS288A transceiver and whips would access into — just in case! Well, it looked like RFDS Alice Springs with Peter VK8AX the operator to help with a QSP. I had already worked Peter during the tour from Western Australia on 80 Mx and met him at Alice, so, much to his surprise he heard my call sign coming out of his commercial rig on 6.950 MHz for a QSP to the local Police and thence Coober Pedy. A request also was made for a QSP to Ron's consignees and XYL back in Adelaide to say that he was OK. Almost an hour later and still listening on standby to Alice Springs, Peter was asked to check what action Coober Pedy Police wished to take. After some more QSPs the answer came back "no action, as nobody had been injured"! dit dit dit dah dit dah.

By this time a great collection of camera-clicking travellers and semis had accumulated on either side of the crash. After clearing a sandy bypass through the mulga scrub, one car going north was despatched to a quarry site 50 kms near "Granite Downs" where a quarrying firm was getting organised to supply the re-routing of the Port Augusta-Alice Springs railway line. They had a 30-ton mobile crane which they promptly despatched and this arrived two hours later at the crash scene to clear the Highway. Such was the helpfulness of the fellows that they suggested to Ron that if he could get his prime mover mobile they would back-load it to Adelaide for a token fee.

By 6 p.m. the road was clear, the spectators had melted up and down the track and the bent and twisted bodies of cars, prime mover and trailer littered the sandy banks of the road like children's broken toys. Knowing that such unattended vehicles would lose their vitals in double quick time and take the form of the countless other cars lying like dead flies on their backs along the 3000 km stretch of the Stuart Highway, Ron was convinced that he had better camp in the Land Rover overnight. For moral support we decided that we would camp beside the road as well. At teatime in the van Ron was anxious about the message his XYL might have received. What else but to look for some VK5 in Adelaide! Ken VK5IM was found on 80 Mx and a QSP reassured Ron's XYL that although a lot of damage had been sustained to the vehicles, he himself was OK.

To cut a long story short (which extended into all day Thursday and until the morning of Friday when we headed south again ourselves) we managed to get the prime mover mobile with a combination of car batteries and one patched original battery. The Land Rover was refuelled from residues in car tanks and spare oil cans and its battery topped up from the wrecked car batteries. Though rather bent it got Ron mobile. The prime mover was driven to the quarry and the trailer and cars subsequently taken to Alice by another co-operating prime mover driver. Such was the story of Amateur Radio at Marla Bore and of the camaraderie of the "Track". Ron is still working on his problems.

By Arthur VK2IK ■

Semi-Trailer Crash, Marla Bore, Stuart Highway, S.A. — 15.7.77.

ALPHA

LINEAR AMPLIFIERS
IN STOCK NOW

MODELS 374 & 76

Australian Sales and Service from:

LINDIS DISTRIBUTORS

(02) 36 7756 Sydney

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

The Editor,

21st November, 1977

Dear Sir,

Mark-Space ratio in the Morse Code.

In 1949 I set up an oscillator, recorder and oscilloscope in the Department of Civil Aviation workshop in Darwin at which time I was acting Supervisor. With the assistance of a sample of top-flight Air Radio Officers we demonstrated the requirements of a change in "weighting" or mark-space ratio in slower Morse Code particularly between 5-8 w.p.m.

The present observation was confirmed 28 years ago.

What's new?

John W. Emmel, VK4CGB (Publicity Officer)

OPEN LETTER

The Editor,

Dear Sir,

We would like to draw your attention to the following items advertised in the magazine, CB Action, No. 6.

	Product
Page 16	100 watt linear amplifier 100FR
Page 46	100 watt linear amplifier HF-3-100L2
Page 88	100 watt linear amplifier Pride 100A
Page 94	100 watt linear amplifier HF-150
Page 110	"Yapper" CB Set

The advertising of the above items must represent some sort of record for cynical irresponsibility.

The first four items are amplifiers which can boost the output of a CB set from its legal 4 watt level to 100 watts plus.

The last item is an ultra cheap CB set which we have reason to believe employs a super regenerative receiver and if so, could radiate a broad interfering signal throughout and beyond the Citizens Radio Service (CRS) and would be absolutely unlicenceable.

All of the above equipment reflects a total disregard on the part of the manufacturer and seller for all users of the radio spectrum in Australia. CRS interference with home electronic entertainment equipment has become a major problem of recent times, and if a sprinkling of linear amplifiers is to be added to the current scene the interference and resulting community pressure on all parties, CBers, Amateurs, P&T Dept, and the Government would not be hard to imagine, (legitimate CB and Amateur operators have already suffered from this misdirected backlash in this regard).

We do not see legislation as a universal panacea, but feel that urgent action is required to prevent the sale of such equipment to persons who cannot show proof that they are authorised to operate it.

The situation with respect to "Yapper" type equipment is more complex and we can only hope that responsible action by "CB Action" and others will help to stem the flood of pre-Christmas sales of such sets and the resulting interference to CRS and ad acent channels.

We look forward to your early response.

Yours faithfully,

Signed R. Wilkins VK3AUR/VAF069

R. Roper VK3YFF

Copies of this letter also sent to:
Mr. Fraser, Mr. Whitlam, Mr. Robinson, Mr. Hamer, Mr. Crowe. Editor CB Action, Editor Electronics Australia, Editor Electronics Today International, Federal Executive Wireless Institute of Australia, National Citizens Radio Association.

CB ACTION'S REPLY

250 Spencer St., Melbourne, 3000
Tel. 60 0421
Telex 30331, 303/6, 30449
Corresp.: P.O. Box 628E, G.P.O.
Melbourne 3001

Messrs Wilkins & Roper,
Stawell Electronics,
179 Main Street,
Stawell.

November 15, 1977

Dear Sirs,

It has happened in the past and will doubtless happen again where obviously well meaning gentlemen such as yourselves rush into letter writing without having any true knowledge of the facts

You roundly castigate CB ACTION for containing advertisements for linear amplifiers but possibly something you are unaware of is the fact that **we cannot legally refuse such an advertisement**

Regardless of our own thoughts on the advertisement and providing the relevant advertisement meets legislative requirements our refusal to run constitutes a breach of the current trade practices act in terms of restriction of trade.

We can advise an advertiser that we are not in agreeance with the contents of the advertisement and, in fact, you will note that of the instances you quote, several of them carry a line indicating that these amplifiers are suitable, or suggested, for amateur use only — this was done at our request.

Possibly you can now see that while we might well agree with your statements it is not our role to act as censors — nor could we legally do it anyway.

This is the job of the Commonwealth Government — not the media.

If it wishes to introduce the necessary legislation then we will obviously be required to fall into line and surely, when all is taken into account, laws are made by Governments, not papers and/or magazines.

We also share your obvious concern about what is taking place right across the spectrum but I wonder if you, as licensed amateurs, have taken any firm steps to ensure that retailers of FT101E's, Kenwoods, etc. sell strictly to amateurs or merely to anyone with the money in hand?

I note that you have forwarded a copy of your letter to the magazine Amateur Radio and I wonder whether you have asked them to only carry advertising from retailers who will guarantee to sell only to amateurs?

All radio operators, be it an unskilled CBer or full call amateur, are facing tremendous problems and the answers can only come from the Commonwealth Government — not the press.

We all fear for the future of radio and while I appreciate your thoughts I'm afraid that, now knowing our own problems, you might care to direct your attention to Canberra — that's where the answers must come from.

Copies to
Messrs. Whitlam, Fraser, Robinson, Hamer, Crowe, WIA, NCRA, Amateur Radio Magazine, EA, ETI.

Yours faithfully,
Leonard J. Shaw,
Managing Editor, Newspress

The Editor,
Dear Sir,

Reference: The Citizens' Band operations on 11 metres.

There is an old saying "If you give a person a yard, they will try to take a mile". This seems to be the outlook of the CB people, who now that they have their operations legalised on 11 metres until June 1982 have no intention whatsoever of vacating this band and it being returned to the amateur service — and I don't speak with "pirate operations". I mean retaining the segment allotted temporarily for their operations for posterity and even bringing up the number of channels now in use to 40 as in the United States. If the WIA doesn't know it — and they probably do, there is a real concerted move to try and force the Government to accede to their wishes by the now hairy old chestnut of "If a law or regulation doesn't suit your particular 'Set' it must be a bad law so we will just ignore it or break it at will".

This is just what is being advocated at organised meetings of the various "CB Clubs" all up and down the country at the present moment.

From what I could ascertain the main argument given out for the benefit of a long suffering public is over the regulations governing the CB service as covered by form RB14. I attended a rally organised by the local CB clubs as a public protest over the above regulations, and the main points that seem to be hammered was over:

1. That the licence fee of $25 was too much to pay for the use of only one unit of equipment.
2. That the 32 kilometre radius of working should be taken off completely.
3. That the use of parasitic arrays should be allowed.
4. That the use of 11 metres should be allowed with an increase in channels forever.

I attended the rally as a private person and just as an interested observer, so I had no official status to speak on behalf of the local Radio Amateur Club or the WIA. Anyway I don't think my opinions would have been too popular with the organisers or the attending crowd. The rally was well organised with speakers giving, naturally, a very one-sided view, although I must admit one speaker did speak very rationally referred to the CB service; he was the only one voice who put forward the statement that CB people should take the Radio Amateur Novice licence if they wished to really overcome the distance clause, but to the extent of overseas communications, not within the continent of Australia.

Even the local "Pollies" up for the State election were brought up and shown, of course anything for "political mileage" with a State election around the corner. The Federal member did not attend, but it was implied by one speaker to "Give your vote to the man who'll do the most for our cause". Of course the whole thing was really a mystery to the "Pollies" but naturally they always smiled and clapped in the right sequence and had an appearance of not knowing why they were there, except it might be good for the ballot.

To get back to the gripes:

As regards the fee paid by CBers I think they have a legitimate gripe here, but of course it's a cumbersome Government way of limiting the number of licences issued, which of course doesn't work because you can buy a CB rig in any big store without reference to licencing.

The second gripe, and this is a more serious one, is of course the fact that CBers should be allowed to work "DX" with no worry of getting a Novice licence whatsoever and this was implied by certain speakers in no uncertain manner that they couldn't care less about the 32 km regulation.

The third gripe was of a minor nature, as I don't think the crowd really understood what a parasitic array was or what the speaker was getting at, as he didn't elaborate it was to do with beam antennas.

The fourth gripe was of course very serious as regards the wishes of the WIA and Government. This one was really hammered out and of course the old sob story of all the present equipment being made obsolete by the introduction of a CB UHF band and the vacating of 11 metres. The fact of only being able to communicate around a limited area of a city did not appeal at all, but of course for anyone to say this was what the CB service was all about would not have been received too well.

There was a minor gripe about procedures, about giving one call sign at the end of each transmission. This was pooh poohed away, and the use of illegal club calls and odd nom-de-plumes advocated to an extent as thought to "be all right".

To sum up, these rallies seem to me to be the usual stunt of ramming a one-sided view down the public's gullet. Plenty of publicity is used in the local press distorting the facts to a gullible public, a very good "sob sister" propaganda being put out. How the CBers are just standing by to save people's lives, how the awful agent of the Government, the local RI, is always waiting around the corner to impound their rigs and it's not fair that they shouldn't be able to transmit overseas — as, believe it or not, this is bad for Australia's external relations! The whole organised operation — because this is what it is — is to gain public sympathy with a one-sided propaganda; nothing is ever mentioned that any CBer who wants to can take the Amateur Novice licence and carry out all the functions they are griping about.

We want more people to get interested in amateur radio, though not at the expense of bringing down the conditions that are carried out in practically every country in the world. To allow people just to do as they like on already crowded frequencies would do us no good and to let the CB service to get away with what they are trying to obtain by "pressure lobbying" would be completely wrong, there would be no point in taking the Novice licence if this were to happen.

This lobbying is an organised affair now, coming into force through the various CB clubs, and of course they have many members, far more talking power than the Radio Amateurs; it's not localised to this area by any means, it was brought out during the meeting I attended that there had been other bigger meets to drum home the same points organised all down the east coast.

I think the WIA should get each affiliated club to get out more publicity to counteract this movement. The Novice exam, whilst retaining the five words per minute morse, to give the licensee some "Elan" that he can read and send five words per minute, should be made easier as regards the technical and regulations questions, say about 35 questions in all over a reasonable time, and the holding of the exams should be done and marked by responsible persons or committees of local Radio Amateur clubs affiliated with the WIA and under the regulation of the Posts and Telegraph Department. The period of the exams could then be brought to at least every three months and the marking committee could even have the authority to issue the Novice certificate and licence from a block regional call sign register. The full class AOCP should be left as it is, and any aspiring Novice could study for this if he wished in his own time as his interest grew.

Yours faithfully,
R. L. Keogh VK4KU. ■

142 Castle Hill Drive,
Nerang, Qld. 4211

The Editor,

25th October, 1977

Dear Sir,

A Gold Coast Radio Club member held a "novice contest" for ladies at the Brisbane radio convention held on the 22nd and 23rd October.

Forty-eight ladies entered the contest which contained two parts, the first being a humorous multiple choice questionnaire whilst the second part was the ability of the ladies to recognise 25 items of tools and parts found in a radio "shack".

Of a total of 49 questions, two ladies tied with only four errors each so a draw had to be made, the lucky winner was Mrs. Brennan, 12 Corn[illegible] Street, Kenmore, Queensland. Mrs. Brennan's husband's call sign is VK4XJ and her son's is VK4AXJ. Her prize supplied by Dick Smith was a digital alarm clock. Mrs. Brennan said "I spend a great deal of time listening".

The lady who tied in top score is Mrs. Elizabeth Parker, our congratulations for an excellent result. Her husband's call sign is VK4ZLP.

73, John W. Emmel VK4CGB,
P/R Officer, Gold Coast Radio Club.

Karl Henning VK6XW
4 Butler St., Narrogin, W.A. 6312

The Editor,
Amateur Radio,

20.10.1977

Dear Sir,

It has surprised me to find a notice in Sept. AR that the Victorian Division's Disposals Committee urges people to place their orders early, as they are closing down operations after Christmas.

I have put in an order for several members in July with a bank cheque enclosed for over $86.00, and I have not heard anything yet. The cheque was drawn three weeks after it was issued and no components arrived. How soon does one have to place an order with these people? The last order they got from me took 12 months to send and previous reminders in the form of an SASE was

ignored. According to the notice in AR I am likely to be the last one to be served with the sweepings of parts from under the shelves. What a beautiful prospect of receiving $86.00 worth of odd size resistors which nobody wants. All this in return for trying to help the Division in particular, and with it Amateur Radio in general.

However it appears to me from previous experience with the Disposals Committee that among the 2200 odd members of Victoria there is not one who is willing to spend a little of his time to sort and pack components just to help the Division. I suppose that the secretary will get his share of criticism from the Jaw-Bones of the Division for not doing more work.

Little wonder that people who hate Amateur Radio are able to walk all over us.

In closing, may I point out an error in the Vic. Div. advertisement on page 30 AR Oct. 1977. The caption should read: "Unfair Component Trading".

Yours sincerely,
K. Henning, VK6XW

EDITOR'S NOTE: Please refer to Victorian Division Statement, printed elsewhere in this issue.

The Editor,

November 10, 1977

Dear Sir,

As someone with a foot in two camps — i.e. Associate Member of the WIA studying for a full call and the Managing Editor of CB ACTION — I always read with great interest your "letter to the editor" pages and having just completed the November issue of AR it has finally forced me to reply.

Mr. Yates (VK2AGZ) bleats about endless TVI while Mr. Stark (VK3APZ) complains of 80m invasion, among other things.

The question is whether either of these two qualified gentlemen has made any contribution whatsoever, other than complaining, to try and clear up the mess which most (certainly responsible CBers) agree has occurred since the so-called "legislation".

Has either of these gentlemen attempted to speak with CBers or maybe assist them with their problems, often caused by ignorance which an interested Amateur might well be able to advise on, my guess is no-way.

I have always had great respect for the Amateur fraternity and am quite aware that they worked extremely hard for the privilege of going "on-air".

However, like it or not, the CBer also now has that privilege and, in the long run, it is the Amateur movement which will benefit.

Certainly, the CBer is restricted to his own frequency and not for one minute do I advocate or endorse "piracy" elsewhere but please — these "pirates" are the irresponsible and idiots — don't tar all CBers with the same rather tired old brush.

Mr. Yates pontificates about, "they blame everyone and everything except their own ignorance and stupidity; of course with a modicum of technical knowledge the 3rd harmonic could be suppressed". Great stuff, Mr. Yates, but might I ask you whether you could tell the difference between a 3rd harmonic and E Major when you commenced your initial interest in radio?

I severely doubt it.

Well that is precisely where most CBers are right now — they have an interest but lack the knowledge — but then, whether you like it or not, the Government does not require any knowledge, only $25 per rig!

While speaking of "pests and halfwits" let's not quietly gloss over the fact that, like it or not, the Amateur ranks are not exactly free of them — and they are not CB graduates as they have been around for many years and, although known to other Amateurs, still remain on air.

I am impressed with the spirit of self-protection and fraternity which prohibits other Amateurs reporting them but please gentlemen, get your own house into order before blasting the CBer.

Currently there are many CBers doing novice and full call courses and, in my humble opinion, this is the greatest thing that has happened to amateur radio in the past several decades.

God knows, the movement is badly in need of new members and new ideas and these will come, again like it nor not, from CB ranks.

Of course there is total chaos on the 11 metre band — what else can you expect with the patently absurd regulations which have been laid down and the complete lack of enforcement (of any kind) by the Post & Telecommunications Departments?

But, just as Messrs. Yates and Stark complain of "piracy", how do you think the responsible CBer looks at illegal power, FT101s, filthy language, etc. on the CB band.

No gentlemen, CB is here to stay — it is legal — it is popular and no amount of grizzling from the old reactionaries will alter that fact.

Why not then move into 1978 and offer your assistance to CBers in your own local area — show them over your shack, advise on their problems, demonstrate what can be done as a full call (or novice) amateur.

In short, don't continue to live in the past when you had an almost God-given right to use the airwaves — recognize that times change and there are now some 100,000 paid-up CBers out there who don't have the benefit of your knowledge — but do have the potential to learn.

Get off your respective backsides and help — not hinder.

That way you'll find a great degree of personal satisfaction in assisting other people while at the same time gradually building the Amateur fraternity in numbers, finances and influence.

Thank you for the space in your publication.

Yours faithfully,
Leonard J. Shaw, Managing Editor, Newspress.

IARU NEWS

RECIPROCAL LICENSING

PART 1

Australia is one of the very few countries in the world where a visiting amateur can obtain an amateur licence as a visitor to our shores.

He can have a valid licence anywhere in the world and with it he can obtain an equivalent Australian licence as long as his visit to Australia will not exceed twelve months.

Anyone who can name even five other countries which offer these concessions ought to qualify for something or other.

The situation is different however when an amateur from overseas comes to live in Australia either permanently or longer than a year.

In this case the rules of reciprocity apply. That is to say, the new arrival cannot obtain an Australian licence if his overseas licence was issued in a country with which Australia does not have a reciprocal agreement in force.

If he holds a valid amateur licence issued in the United Kingdom, USA, Canada, New Zealand, Malaysia, Singapore, India or Switzerland, he can normally obtain an equivalent Australian licence. These are the only countries with which Australia has negotiated reciprocal agreements. See AR August 1972.

"Normally" has been used because there are one or two areas of doubt. It is not known if a USA Novice licence holder can qualify for an Australian Novice licence, for example. The criterion is whether or not the conditions of the overseas grade precisely match (or are better than) the Australian equivalent.

Perhaps some work needs to be done in this field when WARC 79 is past history.

Anyway, the situation is not altogether hopeless as the discerning reader might work out for himself.

PART 2

Looking now at the reverse situation: The holder of an Australian amateur licence going overseas, can obtain an equivalent licence in any of the countries previously listed provided he can prove his morse code speed proficiency (if any) is equivalent to or exceeds that specified for the equivalent licence he seeks. For example, an Australian AOCP holder cannot qualify for a UK "A" lincence if his code speed pass is at 10 w.p.m. He would only be abie to qualify for the "B" licence (VHF and upwards) since the qualification for the UK "A" licence is 12 w.p.m. as in most other countries.

This situation applies irrespective of whether the Australian amateur intends to visit the UK for a short holiday or intends to live there for some time. The same applies to the other countries listed, as far as is known.

Again, as far as is known, the only country which issues Amateur licences to amateur visitors from anywhere in the world is Belgium. For intending residents the position could be different.

As far as is known Australian amateurs can obtain an overseas licence as a visitor (and in some cases even when transferring either permanently or for some time) in a number of Commonwealth countries without the necessity to obtain a pass in the local amateur examinations. There are likely to be exceptions, as for example Hong Kong.

PART 3

Because of all these complications it is desirable to look into the situation where an amateur holds an overseas licence.

The United Kingdom (a) has reciprocal agreements with 23 foreign governments and (b) a reciprocity situation where 29 Commonwealth countries will accept a UK licence as a qualification for the issue of their amateur licence.

The countries under (a) are — Austria, Belgium, Brazil, Denmark, Dominican Republic, El Salvador, Finland, France, West Germany, Iceland, Eire, Israel, Italy, Luxembourg, Monaco, Netherlands, Norway, Poland, Portugal, South Africa, Sweden, Switzerland and USA.

Under (b) the countries likely to interest Australians include — Bermuda, Botswana, Brunei, Canada, Cyprus, Gibraltar, Hong Kong, India, Jamaica, Kenya, Malaysia, Malta, Mauritius, Nigeria, Rhodesia, Seychelles, Singapore, Sri Lanka and Zambia.

The USA has reciprocal agreements with 47 foreign countries (last list seen). Those countries include most of the Central and South American countries, most of the countries listed for the UK (except, oddly enough, Iceland, Italy, Poland and South Africa) and, in the cases of the UK and France most of the Commonwealth countries for the former and New Caledonia, New Hebrides, Reunion and others in respect of the latter. The USA also has reciprocity with Indonesia and Fiji.

Canada has reciprocity with countries similar to the USA list but there are some omissions (such as Indonesia, Kuwait, Austria, Argentina and Monaco) and one addition (Senegal).

New Zealand has reciprocity with the USA and France (including Cook Islands etc.) plus, of course, most Commonwealth countries of note.

The World being what it is today, it would seem as though an Australian travelling overseas ought to arm himself with amateur licences in several countries to qualify for obtaining a licence in some country not directly recognised by Australia for full reciprocity.

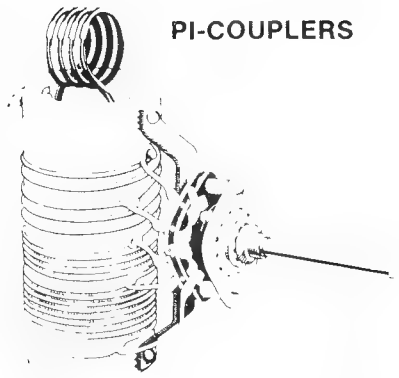
PART 4

Now comes the hard part. Getting an amateur licence given the application of reciprocity.

Firstly, the visitor to Australia applies to the Superintendent of the Radio Branch in the capital city of the State where he arrives (or for the intending resident — where he will live). He will require a copy of his valid overseas amateur licence plus, where applicable, proof concerning operating restrictions affecting his overseas licence. A person whilst still overseas can apply in advance direct to the Regulatory and Licensing Branch, PO Box 5412CC, Melbourne, Victoria, 3001, if he wishes. The applicant must then complete the required application and secrecy forms and pay the annual fee of $12 (Novice $3). Much the same applies for an intending resident holding a valid licence in a country with which Australia has reciprocity. In other cases such a person cannot obtain an Australian licence on the strength of his overseas licence and must obtain a pass in the Australian amateur examinations in the normal way.

Secondly, obtaining a reciprocal licence in other countries. There is normally a considerable waiting period — in other words you should apply well in advance. Some countries do not accept photostat copies of your licence or other papers. In all the countries there is a variable amount of form filling to be done. Licence fees are, of course, normally required.

Applications for a UK licence should be addressed to "Home Office (Radio Regulatory Department), Waterloo Bridge House, Waterloo Road, London, SE18UA, England" at least 30 days in advance of the date the licence is required. No UK licence will be issued in these circumstances without a UK address for the station (or for correspondence) being entered on the application form. The licence fee (1977) is 5 pounds.



PI-COUPLERS

WILLIS MEDIUM POWER TYPE

For use up to 600 watts p e p Match plate loads of 2 000 to 3,500 ohms (Z) and higher into co-axial cable Operating Q increases on higher frequencies to increase harmonic suppression, enabling practical values of tuning capacity to be used on 10 and 15 metres and allowing for wiring inductance (L) Incorporating extra switch section for shunting additional capacity (C) if required, or switching other circuits. Switch rated for 10 amps at 2,000 volts with contact resistant (R) of 0 8 milli-ohms

Suggested for use in **"A LINEAR POWER AMPLIFIER FOR AUSTRALIAN CONDITIONS"** (Refer "Amateur Radio", April, May & June issues, 1976)

PRICE: $23.95

William Willis & Co.

PTY. LTD.

Manufacturers and Importers

77 CANTERBURY RD., CANTERBURY
VIC., 3126 Phone 836-0707

BUYING WHOLESALE?

Keep us in mind when you call for quotes. It can pay to talk to us because we care and we are also stockists of a wide range of components and materials.

ELECTRONIC (Distributors)

(Wholesale Division of
Electronic Enthusiasts Emporium)

223 POST OFFICE ARCADE
JOYCE STREET
PENDLE HILL, N.S.W. 2145

TEL. (02) 636 6222

AMATEUR RADIO PRODUCT MANAGER.

To $18,000 P.A.

Owing to planned expansion in the amateur radio market, Dick Smith Electronics is looking for a Product Manager, to specialize in amateur equipment. An amateur license would be a pre-requisite, plus a complete knowledge of Amateur Radio today! Although this position is intended to be full time, consideration will be given to a retired person who may like to work 3 or 4 days per week.

Please apply in writing to;

Mr. Dick Smith.
Dick Smith Electronics.
P.O. Box 747,
Crows Nest.
N.S.W. 2065.

EMONA electronics

CBC BANK BUILDING, HAYMARKET
Room 208/661 GEORGE STREET,
SYDNEY, NSW

PHONE: 212 4815
A.H.: 399 9061
398 6378

MAIL ORDERS: Box K21, Haymarket NSW, 2000, Australia

WRITE, PHONE OR CALL IN!

INTRODUCING DenTron

LINEAR AMPLIFIERS:

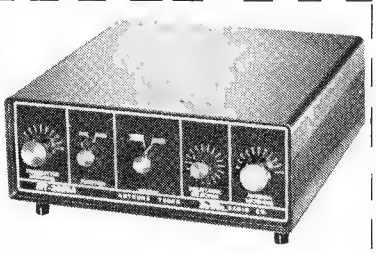
DENTRON RADIO CO.: MLA-2500, 160-10m linear amplifier.
DENTRON RADIO CO.: MLA-1200 — 80-10m linear amplifier.
DENTRON RADIO: 160-10L Superamp, 160-10m linear amplifier.

ANTENNA TUNERS:

DENTRON MT-3000A **DENTRON** 160-10AT **DENTRON** 80-10AT

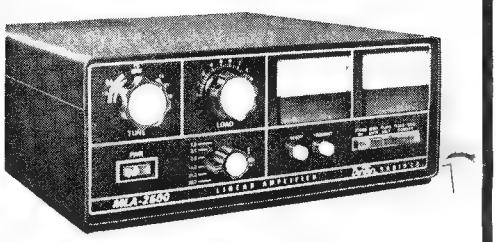
The MT-2000A

The DenTron MT-2000A antenna tuner, an economical full power tuner designed to handle virtually any type of antenna, whether it be a vertical, beam, quad, dipole, or long wire. The sleek styling and low profile of the MT-2000A is certainly beautiful, but be assured that isn't all you're buying. The MT-2000A is designed and engineered using heavy duty all-metal cabinetry and high quality American components throughout. When you consider the MT-2000A's unique features — front panel coax bypass switching, front panel lighting protection antenna grounding switch, 3 kW PEP handling capability and built-in 3 core balun for balanced feed line, we're sure you'll decide to buy American and stay with DenTron.



The Jr. MONITOR

Call it what you will — antenna tuner, transmatch, matchbox, or matching network, the JR. MONITOR has it all wrapped up in one neat 5¼ in. w. x 2¾ in. h. x 6 in. d. all metal cabinet. Think of the unlimited possibilities you'll have for experimenting with dozens of antennas! For instance, the DenTron All Band Doublet fed with balanced feed line hooked to the JR. MONITOR covers 1.8-30 MHz . . . or try this mobile suggestion: 108 in. mobile whip fed with coax to the JR. MONITOR located under the dash will give you 10-40 metre mobile coverage and no coils to change! Order Today.



DENTRON MLA-2500

DenTron Radio has packed all the features a linear amplifier should have into their new MLA-2500. Any Ham who works it can tell you the MLA-2500 really was built to make amateur radio more fun.

DENTRON ANTENNAS:

SKYMASTER — 10, 15, 20, 40m VERTICAL.
SKYCLAW — TUNEABLE MONO BAND 160-40m EX-1 IDEAL VERTICAL FOR PHASING.

- WRITE OR CALL FOR SPECIFICATIONS.
- **CHECK OUR MOST SENSIBLE PRICES.**

WE ARE AUSTRALIA-WIDE DISTRIBUTORS OF DENTRON PRODUCTS

Visitors to the USA should obtain an FCC form 610A from any FCC office and mail it at least 60 days in advance to "Federal Communications Commission, Washington, D.C. 20554 USA". At present (1977) there is no licence fee. For Canada the licensing authority is the Department of Communications, Ottawa, Ontario.

For New Zealand at least two weeks notice must be given before a licence can be processed. The address is New Zealand Post Office Headquarters, Wellington". Required are — the operator's certificate of proficiency (including morse speed passed), receipt showing validity of current licence, permanent postal address in New Zealand, evidence of date of birth. Applications can also be made at the ports of entry: Auckland, Wellington, Christchurch or Dunedin to the local Engineering Office of the NZ Post Office.

For the USA possessions in the Pacific the FCC is not necessarily the licensing authority and no reciprocity exists (e.g. Saipan).

PART 5

Always remember that you must operate within the terms of the amateur licence of the country in which it is issued and from which you operate. The exceptions to this are few, if any.

Also remember that if you travel overseas with transmittting equipment you must comply with local customs and other import requirements. In some countries you cannot import amateur transmitters without being in possession of an amateur licence or specific authority to import.

It is also advisable to take note that if you are in the territorial waters of a country you are subject to that country's licensing requirements. Also, not many countries authorise amateur maritime mobile operations on the high seas. Much the same applies to aeronautical mobile operations.

For details of licensing in other countries write direct to the appropriate licensing authority or note licensing conditions as published in AR from time to time.

It is regrettable that in a few countries amateur radio is totally prohibited. ■

AMATEUR SATELLITES

Bob Arnold

VK3ZBB

In response to my appeal for financial support for the AMSAT Phase 3 satellite I was delighted to receive a donation from the WIA VK2 Division VHF Group which has been sent on to AMSAT HQ. Several promises have been made and further support is solicited. To avoid costly additional postage and bank charges, please forward your donations or membership fees ($US10.00 p.a.) direct to AMSAT, PO Box 27, Washington, DC 20044, USA. Your financial support is urgently needed to get Phase 3 off the ground and will be gratefully acknowledged.

After corresponding with Martin VK4ZIL, a keen Oscar listener, I was able to have a QSO with him through the station of Don VK2PU, a regular on Mode B. A few hours later I contacted him from Brisbane via the Gold Coast repeater, guess what — we both agree communication is much better via the "bird".

Laurie VK4LO is now Oscar co-ordinator for VK4 Division.

I have been relatively inactive during the period under review but the following new stations have been heard:—

ZL3AC Club Station Christchurch
VK2AQG
VK3ACH
ZL2TIY
ZL1TKU

VK8ZGF is again in contact with VK3 on 52 MHz. Geoff, what about hearing you more often via Mode B? There is no waiting, no QSB and no QRM!

During a short visit to the UK I had an opportunity to attend the annual exhibition of the Amateur Retailers' Association held in Leicester, October 27th-29th. The stands were occupied by many of the UK retailers, familiar to readers of the RSGB monthly "Radio Communication", displaying a wide range of equipment of UK, USA and Japanese manufacture, well known to Australian Amateurs, together with a multitude of surplus components. Displays were also arranged by RSGB, BATVA and local radio clubs. It was estimated that over 15,000 amateurs and enthusiasts visited the exhibition which was well organised and of great interest. At the same time I was able to purchase a copy of a new book "Oscar Amateur Radio Satellites" by Stratis Caramanolis. Originally published in German, the new English translation is available from RSGB for £4.20 post paid. No doubt Magpubs at Federal Office and Divisional Offices will stock this book in due course. I will prepare a review of this excellent publication for next month's edition of AR.

I am pleased to pass on further information on the Phase 3 satellite including details of the two transponders.

The primary transponder on Mode B will have the following frequencies —

UP 435.150-435.290 MHz
DOWN 145.850-145.990 MHz
Signal inverted.
General Beacon 145.995

The secondary transponder on Mode J, will use —

UP 145.850-145.990 MHz
DOWN 435.150-435.290 MHz
Signal inverted.
General Beacon 435.145

The most exciting news for operators in the southern hermisphere is that the orbit inclination of the Phase 3 craft is now to be 57 deg. instead of the original 63 deg. On launching in December 1979 the initial inclination will be 17 deg. but when the on-board Thiokol rocket is fired, the inclination will be changed to about 57 deg. What does this mean to us? The use of a 63 deg. inclination is the most favoured one for professional satellites in elliptical orbit as in this situation the effect of the earth's equatorial bulge is negated and the satellite stays in a constant orbit.

Any variation of inclination from 63 deg. permits the effect of the bulge to be noticed by the satellite and consequently the orbit gradually drifts. With an initial inclination of 57 deg. the drift will be a degree or so each month and this will put the apogee of the orbit over the equator in three or four years. Just think what this will mean to VK stations using the satellite which will be 35,000 km overhead.

If you are interested in the geometry of satellites in elliptical orbit and the capabilities thereof, why not join AMSAT and receive their newsletter on a regular basis. You will find out about the problems of predicting the location of a satellite in a drifting orbit. ■

OSCAR 7

JANUARY 1978

	ORBIT	U T C	LONG.	MODE
1	14311	0038	65.3	A
2	14324	0133	78.9	B
3	14336	0032	63.7	A
4	14349	0126	77.3	B
5	14361	0026	62.2	A
6	14374	0120	75.7	B
7	14386	0019	60.6	A
8	14399	0114	74.1	B
9	14411	0013	59.0	A
10	14424	0107	72.6	B
11	14436	0006	57.5	A
12	14449	0100	71.0	B
13	14462	0154	84.6	A
14	14474	0054	59.5	B
15	14487	0148	83.0	A
16	14499	0047	67.9	B
17	14412	0141	81.5	A
18	14424	0041	66.3	B
19	14437	0135	79.9	A
20	14449	0034	64.7	B
21	14462	0129	78.3	A
22	14474	0028	63.2	B
23	14487	0122	76.7	A
24	14499	0022	61.6	B
25	14512	0116	75.2	A
26	14524	0015	60.0	B
27	14537	0109	73.6	A
28	14549	0009	58.4	B
29	14562	0103	72.0	A
30	14574	0002	56.9	B
31	14587	0057	70.4	A

REPEATERS

MILTON-ULLADULLA REPEATER VK2RMU

From "The Lyrebird", Oct. 77

The NSW coastline south of Kiama becomes increasingly rugged and heavily wooded and two-metre operation along the Princes Highway and at many popular holiday resorts and townships, has been, till recently, most disappointing.

The establishment of a repeater VK2RMU at Milton-Uulladulla has changed these poor conditions and has opened up 2-metre communications between Kiama and Narooma in a most satisfactory manner.

The repeater is temporarily located at the home of Frank VK2HQ at Milton. Ultimately it will be installed at a higher position about 300 metres above sea level. Thus the primary service area, the coastal strip, will have even better coverage than at present.

VK2RMU is one of the few repeaters in Australia using high power (100 watts ERP) and receiver sensitivity of 0 3 uV while at the same time running fully duplexed: transmitting and receiving on the same antenna. Additionally, one of the few repeaters with 100 per cent stand-by equipment. Two separate repeaters!

The stand-by feature is particularly valuable because of the widely scattered club membership and the difficulty of finding, at short notice, sufficient technical back-up with appropriate test equipment to keep the repeater operational without long out-of-service periods.

The installation comprises:
Repeater 1 Hybrid solid state/valves
Repeater 2 Solid State
(Remote control change-over facilities, Repeater 1 to Repeater 2, and vice versa are in the planning phase.)

A common ident board may feed either repeater. The ident board modelled on the Mt. Ginini repeater provides call sign ident, repeat ident, carrier-break timer, transmitter tail length, etc.

Provision has been made to alter the tone of the ident and give other audio frequency indications to enable identification of changes in repeater status. Such parameters as overheating, smoke (internal and external to repeater), low power output, drop in mains voltage, intruders etc., will be automatically relayed to listeners.

REPEATER 1

Is a modified AWA base station type BST-50A. The transmitter is solid state except for the final stages. The power amplifier uses a QQE06/40 with a nominal output of 50 watts. Deviation set for 7½ kHz. The above arrangement is particularly effective in reducing unwanted emissions and is quite superior in this regard. The receiver is solid state except for the 6EJ7 RF stages. This receiver has exceptional resistance to intermodulation products which often plague receivers located near other transmitters. The receiver sensitivity: 20 dB quieting for an input of 0.5 uV.

REPEATER 2

Power Output: 25 watts Barefoot, 65 watts with PA.

Receiver Sensitivity: 0.15 uV = 10 dB $\frac{S+N}{N}$

Ratio with ±3 kHz deviation at 1 kHz. The above figures do not take into account the duplexer but are measured at the Receiver input and the Tx output.

Keying: Fully solid-state switching is employed throughout (i.e. no relays). However overvoltage protection relays are incorporated in the 12-transmitter power supply so that in the unlikely event of power supply failure, excessive voltages will not be applied to the transmitter.

Power Supplies: Considerable effort has been taken with the power supply regulator to ensure that no reduction in receiver sensitivity or transmitter output power will occur, even if the voltage drops to as low as 165V AC.

Audio Characteristics: The audio response of the complete system has been tailored to be flat from 200 Hz to 2.8 kHz. The transmitter audio system has a 3 kHz low pass filter prior to the modulator with a 15 dB per octave roll off above 3 kHz to minimise modulation sideband products.

Mute characteristics: The repeater incorporates a sophisticated noise quietening mute system such that the mute threshold does not change with supply variations of 160V-280V AC or temperature

variations of —10 deg. C to plus 80 deg. C. The mute switching contains a 4 to 6 dB hysteresis system to ensure that even if a slight amount of receiver desensing should occur due to cavity drift in the duplexer, the repeater will not tend to chatter or hang on, i.e. the receiver needs a slightly stronger signal to open the mute than that which will keep the mute open once activated.

DEVIATION CHARACTERISTICS

Receiver Bandwidth: 30 kHz (± 15 kHz).

Transmitter Deviation: 7.5 kHz.

Diode clipping plus an active low-pass filter are employed to ensure that the transmitter peak deviation cannot exceed ±7.5 kHz.

Received signals with deviations of up to ±5 kHz will be faithfully reproduced at the transmitter output.

Deviation above ±5 kHz will be limited to a maximum of ±7.5 kHz at the transmitter output by the clipper filter.

Receiver: The receiver is a triple conversion superhet using a dual gate FET RF amplifier-bipolar mixer to the 10.7 MHz 8 pole filter-dual gate FET second mixer to a 455 kHz IF detector system. Seven transistors are employed in the noise quietening mute system. The complete receiver contains 17 transistors plus 2 integrated circuits.

Transmitter: The transmitter is a pure FM system rather than phase modulation (once again to reduce modulation side bands which may appear on the receiver frequency) using 6 transistors in the audio section and 4 in the 200 mW exciter driving a "Motorola" module to 25-30 watts barefoot. The "after-burner" is an 80 watt PA using a BL7568 with the power reduced to 65 watts in the interest of extended life.

The complete unit has undergone an elaborate testing programme in a sophisticated R & D laboratory under wide temperature and supply variations before being placed in service and it is anticipated it will perform with a very high degree of reliability in the field.

Both repeaters operate from 240V mains but Repeater 2 may be operated at a lower power (20 watts) from a 12V storage battery. This unit, receiver and transmitter, is compactly built to enable rapid transport for operation elsewhere should an emergency require it.

The receiver and transmitter are coupled to the antenna through a nest of high-Q cavity filters, four at the receiver input, and another four at the transmitter output. These duplexers provide a notch at receive and transmit frequencies, of the order of —118 dB with a width of about 100 kHz at the —100 dB point. Commercial repeater systems use a frequency separation of 2 per cent or more between input and output channels. Amateur repeaters on the 2 metre band, on the other hand, have a separation of only 0.4 per cent, a much more difficult proportion. The total insertion loss of each four-section duplexer is less than 2 dB. This is more than compensated for by the use of a common feedline and a common antenna for both receiving and transmitting. The duplexers were constructed and tuned by club members.

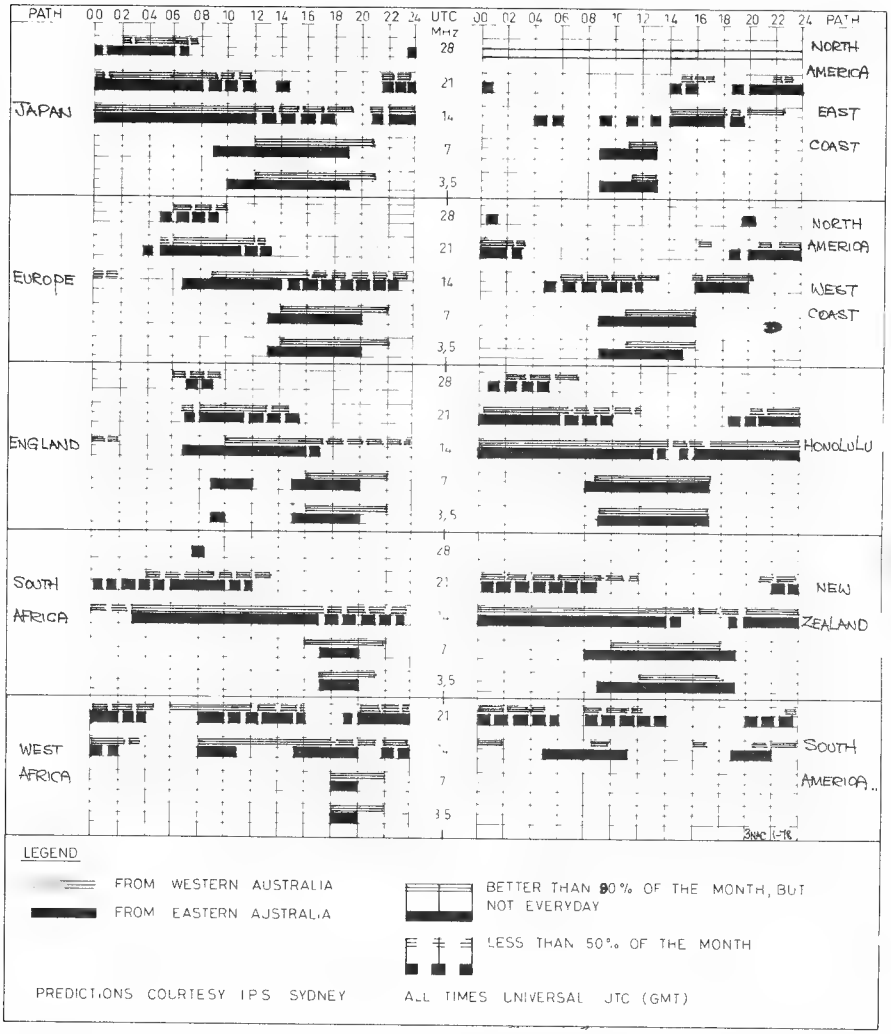
The narrow strip of inhabited coastline which the repeater services makes a directional antenna attractive. The antenna at present in use comprises a stack of two three-element beams feeding in a northerly direction and a similar array feeding south. The beams are arranged so that the back waves from the back-to-back arrays, effectively cancel in the mast. The effflective radiated power is about 100 watts north, and the same south.

NOTE:

Keith VK2AT has worked into the repeater from Smiths Lake near Forster. Ken VK2KP and Bill VK3JT have both worked into the repeater from Green Cape about 20 km from the Victorian Border.

IONOSPHERIC PREDICTIONS

Len Poynter VK3ZGP/NAC



INTRUDER WATCH

Alf Chandler, VK3LC

THE JAMMER

Everyone who operates on 40 metres must have experienced the frustration of finding a large segment obliterated by a jammer.

The Russian jammer is frequently referred to as "Majak". I explain the term by a quotation from the September ARRL Intruder Watch Memo:

" 'Majak' is a Russian word meaning 'beacon', and is used by Russians to identify their second program, from Radio Moscow. This second program is used as a regional program. The service uses six second ticks on the hour and half hour, and a somewhat different musical 'interval signal' from that on the first program".

The USSR frequently uses the Majak audio to jam other transmissions, particularly the Russian programs from Peking. This is done by overmodulating some 500 per cent so that the original audio is lost and a terrific noise, spreading wide, results.

Frequently, the transmitter spraying out the Majak jamming creates families of spurious signals so that a very large part of our 7 MHz band is sometimes obscured.

Occasionally, the six second ticks on the jamming transmission can be heard and matched with the program in the clear on 7200 kHz.

THE INTEREFERENCE PATTERN

It is a strange anomaly that, despite all the band planning, frequency allocations and regulations finalised at ITU Conferences, any nation may still place a transmitter on the air on any frequency that it so desires and will not be required to remove it unless a complainant nation can provide substantial evidence that the aforementioned transmitter causes harmful interference to a service operating on the frequency.

In the USA, the ARRL works in close liason with the FCC to provide the substantial evidence as mentioned above. Reports coming in are carefully scanned for patterns, the monitoring stations are alterted, and once the presence of the intruder is established, a telegram is sent by the FCC to its counterpart in the country from which the offending transmissions emanate.

To establish a pattern, many observers' reports are required. These are forthcoming in the U.S. where there are a thousand reports each month. Unfortunately, this is not so in Australia, where, at present, a mere handful of amateur operators regularly send in reports of intruders, and a few others send in reports occasionally. Although complaints about intruders are quite common, so very few feel inclined to put the time and effort into noting down full details of even one intruder.

Would the preceding paragraphs have spurred some readers to act? ■

WICEN

Here is the text of a letter addressed to Brig. Roseblade VK1QJ by Maj. Gen. A. B. Stretton A.O., C.B.E., Director of the Natural Disasters Organisation —

"Thank you for your letter advising the results of the WICEN exercise which was based on the scenario of our exercise Backup 77. The radio teletype capability is a major step forward and should significantly enhance the usefulness of WICEN in a major disaster.

"I would also like to thank you for your participation in Backup 77 and can report that the

simulated WICEN input was most useful. I would hope that we can make similar arrangements for next year's exercise, possibly with a greater variety of messages representing information passed on behalf of other agencies, as well as direct information received from WICEN operators.

"My Communications Officer should be available to attend your exercise debriefing meeting provided the date does not conflict with any other meetings he may be required to attend."

This exercise was reported in the Canberra Press.

In Victoria the VK3 WICEN organisation has been involved with radio communications for the second year for the Light Car Club International Rally at Bright from 25th to 27th October. This Division will also be attending to radio communications for the Red Cross Murray River Canoe Marathon for the fifth year in succession. The dates are 27th to 31st December.

The following is a simplified guide to emergency operating —

AIM

1. To provide the ordinary amateur radio operator who has had no WICEN training with a simple guide to emergency communications for use when caught up in an emergency or disaster situation.

NEEDS OF EMERGENCY

2. This guide is devoted to the situation where the amateur operator has to bridge a gap in normal communications in a hurry. He then is linking an emergency site or disaster area with the "outside world" and its normal communications.

OPERATOR ACTIONS

3. The amateur operator should call on the most suitable band, on the WICEN designated frequencies listed below to achieve initial contact. If no contact results use any frequency in use to stimulate a reply.
4. He should declare his call an emergency call by one of the pro words below and should not be discouraged if he receives replies from anywhere but the desired direction, for skip may preclude the direct path and relay procedure may need to be employed.

RESPONDING STATION ACTIONS

5. Responding stations should answer an emergency call but relinquish "hold" if a more direct circuit or link can be arranged; however they should remain on **listening watch** and monitor the circuit.

WICEN CALLING FREQUENCIES

6. WICEN calling frequencies are as follows:
   3 600 kHz
   7 050 kHz
   14 100 kHz
   Secondary frequencies will be spaced +25 kHz for SSB and —25 kHz for CW.
   VHF calling frequencies are channel 50 (146.50 MHz) or available repeater channels.

PROWORDS

7. The following prowords have the meanings shown below:
   MAYDAY (SOS in CW) — the station sending is threatened by grave and imminent danger and requests immediate assistance.
   PAN (XXX in CW) — the station has a very urgent message to transmit concerning the safety of ship or aircraft or person.
   WICEN — the sending station wishes to set up a Wireless Institute Civil emergency net or link.

WICEN EXERCISE — HARDIE FERODO 1000

From "Tuned-In", Nov. '77

The recent Hardie Ferodo 1000 at Mt. Panorama saw a combined effort by Bathurst State Emergency Service personnel and WICEN operators in providing a communications safety net at selected locations around the race track during the day long race on Sunday, 2nd October.

The exercise has been beneficial to both groups in understanding how each works and has also created a good working relationship for future exercises or emergencies.

The following letter was received by Robert VK2ZRJ, after the exercise:—

"On behalf of Bathurst SES I wish to thank you and your members for your co-operation at the Hardie Ferodo 1000. I feel it proved most beneficial for our members, it helps them gain experience in many facets of Radio Procedure and also gave them a look at how the Amateurs work.

"I hope that we can get together for future events of the same as Sunday. Again, many thanks and hope to see you soon.

A. Brownscombe,
Communications Officer"

Robert thanks WICEN operators Allan VK2BNA, Peter VK2TK, Eric VK2BEO, Bill VK2BVW and Ken VK2ZAN for their interest and co-operation during the exercise. ■

LARA

Ladies Amateur Radio Association

We start off this year by wishing a Happy New Year to all.

In the last year, LARA has grown considerably which means that the committee are kept busier and all that. At time of "going to press" the AGM in VK3 is imminent, so best wishes to the "new" office bearers (they'll need it).

The LARA newsletter, which along with the weekly skeds, is our main means of communication within the group, is being mailed to an ever-growing list of subscribers. A sincere vote of thanks must go to Norma 3AYL who handles most of the work involved in production and distribution of the paper. The first 1978 edition awaits articles from eager contributors (or not-so-eager contributors or even downright unwilling contributors) so get to work with pen and paper.

The Monday night sked on 80m has always been popular. These days the sked is so crowded that brief overs and brisk net procedure have to be the order of the day. Nonetheless new YL "faces" are always warmly welcomed (and we've all been "mike-sh*y" at some stage so we understand!) New YL calls (some belonging to long-standing sked members) are being heard on air now, and congratulations to those ladies on their success in the exams (consolation to the not-so-successful such as myself).

Moves are afoot to establish a Novice YL sked either further down the 80m band or in another band, but this has to be co-ordinated with availability of crystals in common. Any ideas or suggestions on this subject would be welcomed by Mavis 3BIR who is co-ordinating the plans for this sked.

It's summer at present, which is of course associated with such pleasant thoughts as sun, surf, beaches 'n' beer, swimming, ice cream, LARA Christmas parties (and rain, as usual) — held in December, and last but definitely **not** least fox-hunting. "Hounds" in full beam-swing may soon be seen around the suburbs of Melbourne "Tally-ho"ing like mad and getting lost as usual (what a delightful prospect!) More plans for all this later on.

Just to keep readers interested, next month's article will continue with the second of a series on YLs in Australian amateur radio.

33s for now,
Kate Duncan (Publicity Officer) ■

CONTESTS

Kevin Phillips, VK3AUQ
Box 67, East Melbourne, 3002

CONTEST CALENDAR

Dec. 10-Jan. 8	ROSS HULL VHF/UHF MEMORIAL CONTEST
January	
14-15	YU 80 Metre CW Contest
14-15	DL QRP CW Contest
14	RTTY Flash contest
22	RTTY Flash Contest
27-29	CQ WW 160 CW Contest
28-29	French CW Contest
29-30	Classic Radio exchange
February	
4-5	ARRL DX Phone Contest
4-12	ARRL Novice Contest
11-12	JOHN MOYLE MEMORIAL NATIONAL FIELD DAY
11-12	Ten-Ten QSO party
11-12	QCWA QSO party
18-19	ARRL DX CW Contest
18-19	YL-OM Phone Contest
25-26	French Phone Contest
March	
4-5	ARRL DX Phone Contest
4-5	YL-OM CW Contest
18-19	ARRL DX CW Contest
25-26	CQ WW WPX SSB Contest
April	
1-3	ARCI QRP QSO party
11-12	DX to W/VE YL CW party
25-26	DX to W/VE YL Phone party
29-30	PACC Phone and CW Contest.

DL QRP CW CONTEST

Starts 1500 GMT Jan. 14 and finishes 1500 GMT Jan. 15. Power input for this contest is limited to 10 watts or less, single operator and CW only. QRO stations may participate but only contacts with QRP stations are valid. Limit operation to 15 hours. The 9 hours off may be taken in two parts. Contacts may be made on any five bands in the 1.8 to 28 MHz spectrum.

Exchange RST plus QSO No. and power input, add "X" if crystal controlled. (579001/8X) Stations using more than 10 watts indicate QRO instead of power.

Scoring

Contacts with stations in same country, 1 point. Other countries but same continent, 2 points. DX on other continents, 3 points. If QSO is with another QRP station, add 3 points. Stations using less than 3.5 watts get credit for 1 handicap point, and another point if rig is crystal controlled. Double the above points if both stations meet above handicap requirements (8 to 12 final points possible). Reducing input power of a commercial rig does not qualify it for handicap bonus.

Multiplier

Each DXCC country worked, one if on own continent, two if on another continent. Plus call areas of JA, PY, VE, VK, W/K, ZS. Final score is total QSO points from all bands times the multiplier points from each band.

Include a summary sheet showing the scoring, equipment description and the usual signed declaration. Mailing deadline Feb. 15th to Hartmut Weber, DJ7ST, D-3201 Holle, Kleine Ohe 5, West Germany.

RTTY FLASH CONTEST

In two periods, 1500 to 2300 Jan. 14, and 0700 to 1500 GMT Jan. 22. All bands 3.5 to 28 MHz and also via Oscar. The same station may be worked on each band for QSO and multiplier credit. Exchange callsign, RST and CQ Zone.

Scoring

Contacts with station in own Zones, 2 points, and with stations outside own Zone according to the value in the "exchange point table". Oscar contacts count double in point value. Multipliers are each DXCC country and W/K, VE and VK call area worked on each band. Final score is total QSOs X exchange points X total multiplier.

It is suggested you write to Prof. Fanti for a more detailed rules sheet and an "exchange point table", handicap table and sample forms. Logs must be received no later than Feb. 28th, and go to Prof. Franco Fanti, via Dallolio 19, 40139 Bologna, Italy. ■

AWARDS COLUMN

Brian Austin, VK5CA
P.O. Box 7A, Crafers SA, 5152

ADXA AWARD

1. The award is available to licensed amateurs.
2. Contacts on and after 30.7.1952 are valid.
3. Do not send QSL cards. A list showing full details of the contacts should be certified by the Awards Manager of an IARU Affiliated Society.
4. The fee for the award is 10 IRC.
5. The address for applications is:
   JARL Awards Manager,
   Postbox 377
   Tokyo Central, Japan.

RULES:

Contacts with countries count only when such contacts are valid under DXCC rules as regards date etc.

Requirements: Confirmed contacts are required with 30 or more countries in Asia.

COUNTRIES LIST:

AC3	UI8
AC4	UJ8
A5 Bhutan	UL7
AP Bangladesh	UM8
AP Pakistan	VS1/9M4/9V1 Singapore
BV/C3	VS1/9M2,4 W. Malaysia
BY/C	VS2/9M2 Malaysia
C9	VS6
CR8 Damao, Diu	VS9/70
CR8 Goa	VS9K
CR9 Macao	VS9H
EP/EQ	VS9M/8QA
F18 (Fr. Indo China)	VU
FN8	VU Andn. & Nicr.
HM/HL	VU Laccadive
HS	XU
HZ/7Z	XV/3W8
JA/JH/JR	XW8
JD/KG6I Ogasawara Is.	XZ
JT	YA
JY	YI
KR6/8	YK
MP4B	ZC6/4X1
MP4Q	Spratly Is.
MP4M/VS90	4S7
MP4T	4W1
OD5	4X4/4Z
TA	5B4/ZC4
UA9 0	8Z4
UD6	9K2
UF6/4L7	9K3/8Z5
UG6/4J7	9N1
UH8	

5 x 5 AWARD, NEW ZEALAND

1. The award is available to licensed amateurs.
2. Contacts from November 1945 are valid.
3. Do not send QSL cards. A list showing full details of the contacts should be certified by the Awards Manager of a national society.
4. The fee for the award is $1 or 10 IRC.
5. The address for applications is:
   NZART,
   Box 489,
   Wellington, New Zealand.

Requirements: The same station must be contacted on 5 bands, and repeated with five DXCC countries. This makes the same station in five different DXCC countries on 5 bands.

Endorsements are given for 10, 20 and up to 100 DXCC countries on five bands. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Commercial advertising is excluded. Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means the advertiser's name and address are correct in the current WIA Radio Amateurs Call Book.

FOR SALE

Drake TR4c Xcvr., current model, with mic., spkr., and matching Drake AC power supply. Sell for half new price, $475. VK3OM, QTHR. Ph. (03) 560 9215.

2m FM Carphone AWA MR6A, no case or xtals, $20. VK2ZQC. Ph. (02) 81 2143 AH.

Meters, Transformers, incl. 110V types and valves, most items new, selling cheaply, SASE for list. John Bilston, 19 Edgar Road, San Remo, 3925

FT101 Mk 2 $380; FL2100 amplifier, $300; FV101B external VFO, $75; Datong Speech Clipper, $50; QM70, 28/144 QRO transverter with 101 plugs, $100. VK4AKE, Tom Fishpool, Box 1225, Cairns.

Frequency Meter SCR211AK, $20; Heathkit Cantenna dummy load with oil, $15; Hygain trapped vertical 18AVT/WB-A, $50; 3 in. diam. 360 deg. directional indicator with drive unit, 12V operation, $25. VK3XY, QTHR. Ph. (03) 97 1265.

Remington 6mm High Power Rifle, 3-9x40 scope, all access. and reloading equip. and components, 200 rounds, sell or swap for amateur equipment, cash adjustment. VK3ZNC, QTHR. Ph. (051) 47 2368.

Varactor tripler, 20W o/p at 432 MHz, $20; Varactor quadrupler (2 diode), 20W o/p at 576 MHz, $25; FM base station, 52.525 MHz, 5 power levels to 150W i/p, $60; AM 150W 2m Tx inc. separate YL1060 final, p/s, heterodyne exciter (xtal/VFO), modulator, use as-is or convert to SSB, $90. Bob Halligan, VK3AOT, QTHR. Ph. (03) 697 6011 bus., (03) 787 6426 AH.

PFT-203 SIEWA VHF-FM C/W rptrs. 2, 4, 6, 8, ch. 40 & 50, excellent condition, high sensitivity with Ipswich pre-amp, provision for 25 ch. 28W power o/p min., $190; Tokai TC1001 CB 23 ch AM/46 ch. SSB, PA facility, extremely well made rig and brand new, easily converted to 10m by changing one xtl, all cables and connectors incl. $190. VK4ZEC, QTHR or Ph. (071) 28 2937 VK4PC.

Unimetrics Stingray, converted to WIA 28 MHz band plan, suit Novice, $189. Ph. (03) 232 9616.

Complete Video Display Board as per EA article, $150. Neil Osborne, VK3YEI, QTHR. Ph. (03) 763 5207 AH.

Yaesu FTV650 6m Transverter, as new, with handbook, in original packing, $165. AR22-R rotator and control, good condition, $40. TCA1675 with ch. 40, $45. Pye CCU and camera, with cables, spare vidicon and handbook, works OK, $125. Home brew ATV Tx, 10W, with very heavy PS, trans. mod., $65. R. N. Ferguson VK5EI, QTHR.

FT101B with inst. book and mic., $550. BC221, AC power supply, with calib. book, $25. 4A 6/12V charger, $15. LSG11 sig. gen., $25. Plus oddments. Send s.a.s.e. for list. Deceased estate. Contact VK3YQ, QTHR. Ph. (03) 859 3604.

Steel Tower, 44 ft., two section, self-supporting, heavy duty, triangular, crank up, tilt over, with or without TH3 Mark II Yagi and ham m. rotator. Transferring to VK7. What offers? VK2DM, QTHR. Ph. (02) 871 1662.

FRG7 Rx by Yaesu. Latest model with clarifier, as new in carton, $255. Ph. (03) 467 2131, business hours.

FT200 Transceiver with power supply, handbook, and complete set spare valve, $350. VK2BJS, QTHR. Ph. (02) 92 5290.

Galaxy 5 Transceiver, 400W 80-10m, with power supply and spkr., excellent condition, manual, circuit, 100 kHz calibrator, spare 6HF5 p.a.'s, other tubes, $300. VK4UF, QTHR. Ph. (077) 74 1195 after 6 p.m.

Collins S line. 325-3 Tx S/N 102190 75S3B Rx S/N 85224, 30L-1 linear amp. S/N40876, 516F2 pwr. supply, 312B4 control, KW108 monitor scope, all with handbooks, cables and in mint cond. Not a bargain, but will negotiate. VK3IZ, QTHR. Ph. (03) 813 2355 B.H.

WANTED

Licensed Amateur (full call) to coach student, wishing to obtain licence (theory only), fee negotiable, would prefer local person. Ph. (03) 689 2619 AH. J. Singarella, West Footscray.

VHF RX covering 2m, suitable for car, may be tcvr with Tx section completely U/S. L30546, QTHR.

MUFAX facsimile machine wanted, top price paid. VK5JE, QTHR. Ph. (08) 262 4622 AH.

Assembly Instruction and any technical data on TH5-Hy Gain 4 el. 3 band beam, will buy or copy as required. Contact VK3CN, QTHR. Ph. (056) 55 1929.

Swan MB40 or MB40A mono band SSB/CW transceiver or similar 40m unit. Details and price VK3UJ, QTHR. Ph. (03) 874 5632.

CRO for general use. Single or dual trace in working order. Don Richards VK2NFF. Ph. (02) 406 4368.

FT101 or FT101B complete with AC and DC power leads, manual if possible, condition not critical. Also Mark mobile whips 40-80-20m. Reasonable price paid. Dan Clift VK2DC, QTHR. Ph. (047) 39 2782 evenings.

One Power Transformer 1100V, secondary winding at 250 mA, for linear amplifier, 3000V power supply. VK2AJT, QTHR. Ph. (044) 22786.

Shortwave Rx for serious monitoring, able to tune within 5 kHz. VK4NBC, QTHR. Ph. (074) 62 1294.

STOLEN

IC22A serial 1963, from QTH. Details please to VK3BH, QTHR, or police.

SILENT KEYS

It is with deep regret that we record the passing of —

GORDON V. LANCASTER VK3AFV

ALF KERR VK3JQ
Alf passed away 22nd July, 1977.

Alf's early introduction to the field of radio commenced about 1923, and at the age of 16 years, in 1926 he obtained his Amateur Operator Certificate and the call sign A3AL. With the introduction of the VK prefix he became VK3AL, a call sign he retained until the immediate post war years.

In 1929 Alf was successful in obtaining his Broadcast Operator's Certificate, and with Warne Wilson who held the amateur call sign VK3WA in those days, they became the co-founders and engineers of one of the first commercial country radio stations — 3BA Ballarat.

During the 30s VK3AL was well known as one of the few amateurs who had a great deal of success in the use of grid modulation. Alf's desire for precise technical perfection led him to import from Germany a specially designed valve for Telefunken (Grid) modulation, with which he produced such excellent grid modulation in those days. Due to business commitments Alf was not active as a licensed amateur for many years following the war. However he retained a great personal interest in Amateur Radio and in February 1974 became licensed as VK3JQ.

His love of radio, particularly Amateur Radio, and his interest and concern for the future of Amateur Radio, and The Wireless Institute of Australia, brought him in contact with problems of these days He became a Councillor of the Victorian Division and in February 1977 he was elected as President of the Victorian Division.

As VK3JQ his operating was mostly from a mobile, and his kindly words of encouragement and help to other amateurs marked him as a true "Radio Amateur" in the real sense.

Ron Cannon VK3BRC

Mr. R. H. DIXON VK2QD
Friends of Reginald Dixon will be saddened to learn of his death on 22nd October, after a very long illness.

"Herb" as he was generally known, was licensed as VK2QD in 1934, and remained active until about eight years ago, when illness overtook him

Radio had been Herb's life commencing with AWA and obtaining his Broadcast Operators Certificate when with 2AY Albury.

He entered private business in radio and later TV, and then worked as a radio technician with the Army Workshops at Bandiana until illness finally forced retirement.

Condolence is extended to his wife Audrey and family.

Jack VK2AY

— VK2 —

Central Coast Field Day

GOSFORD

SUNDAY, 19th FEBRUARY, 1978

Details from **C.C. A.R.C.**
P.O. Box 238, Gosford, 2250
or on VK2 Broadcasts

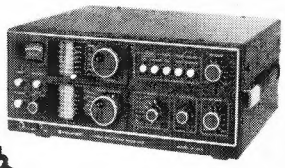
WHAT'S BLACK & WHITE AND TURNS 2-METRE OPERATORS GREEN ?

THE NEW KENWOOD TR-7400

This is the one, the Kenwood TR-7400 FM mobile transceiver of 25/10 watts and complete 2 metre band coverage (144-148 MHz). It has the largest digital readout in its class, and the 800 channel coverage with PLL frequency synthesizer provides you with all existing and proposed Australian repeaters. A convenient front panel switch offsets the transmit frequency up or down 600 kHz.

WHENEVER YOU WANT TO MOVE UP — KENWOOD HAS THE WAY

TR-2200 2-metre VHF FM portable receiver



R-300 all band or ham band communications receiver

The new TS-520S HF transceiver — ideal for the novice

TS-700 2-metre VHF all mode transceiver

Your nearest Kenwood dealer will be happy to give you more information on the entire Kenwood range of amateur radio products including the remarkable new TR-7400. Contact him direct or write to us at Weston Electronics.

KENWOOD

Marketed in Australia by Weston Electronics Company, 2 The Crescent, Kingsgrove, NSW 2208. Distributor for Trio Kenwood Corporation, Japan.

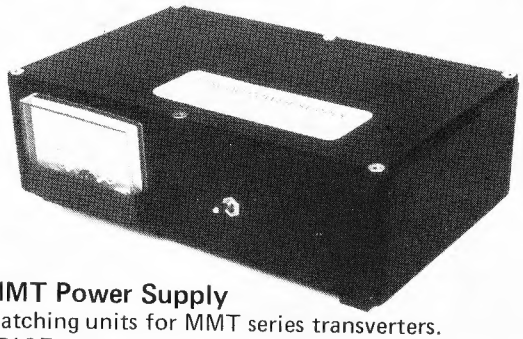
PLEASE SUPPLY ME WITH MORE INFORMATION ON.....
NAME.....
CALL SIGN.....
ADDRESS.....
POSTCODE.....
PHONE No.....
WEC.AR.2

UHF for the Amateur...

ALL FULLY IMPORTED FROM THE U.K.

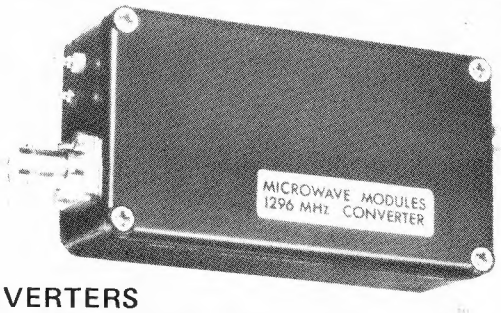
MMT TRANSVERTERS
MODEL MMT 432/144 PRICE: **$260**
MODEL MMT 432/285 PRICE: **$235**

70cm

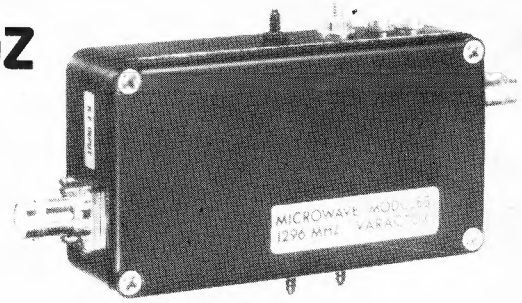


MMT Power Supply
Matching units for MMT series transverters.
PRICE: **T.B.A.**

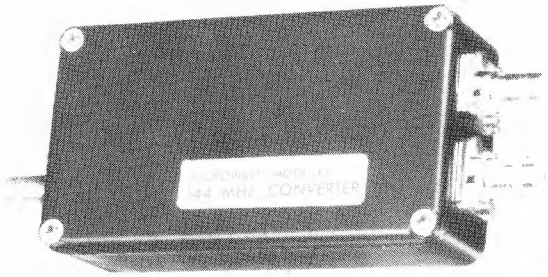
1296mhz



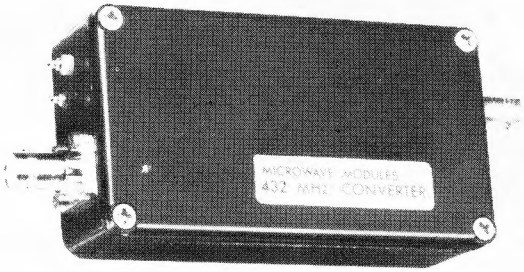
CONVERTERS
MODEL MMC 1296/28 PRICE: **$65**
MODEL MMC 1296/144 PRICE: **$65**



VARACTOR/TRIPLER
MODEL MMV 1296 PRICE: **$74**



CONVERTER, with Ocsillator Output Facility.
6 METER MODEL 52/28LO PRICE: **$49**
2 METER MODEL 144/28LO PRICE: **$49**



CONVERTERS
70CM MODEL 432/28 PRICE: **$51**
70CM MODEL 432/144 PRICE: **$51**
2 METER MODEL 144/28 PRICE: **$45**

500 MHZ COUNTER
MODEL MMD050/500 PRICE: **$175**

PRESCALER
Divide by 10, 500Mhz. Module only, no case PRICE: **$49**

LINEAR AMPLIFIER — FOR 70CM — 90-100 WATTS
Expected for delivery, late December, full details should be available at time of advertising.

BNC Connectors, imported from U.S.A. PRICE: $1.85 each
BNC Connectors, imported from U.K. PRICE: $1.35 each

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
ONWARDS forwarding. Please add sufficient for freight or postage, excess will be refunded.

Australian Distributors for Microwave Modules Limited, U.K.

Amateur Electronic Imports

P.O. BOX 160, KOGARAH. N.S.W. 2217
TELEPHONE: (02) 547-1467
CABLE: "AMATEURIMPORT, SYDNEY"